The Executive Resource for Doing Business on the Net

WEBMASTER

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January 1997

Is Your Web Worthy?

— THE —

WEBMASTER

50/50

AWARD

www.web-master.com/50/50

details inside

AN INTERNATIONAL DATA GROUP PUBLICATION

CIO MAGAZINE

WEBMASTER MAGAZINE

EXECUTIVE PROGRAMS

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CIO COMMUNICATIONS, INC.

Where Technology Gets Down to Business

Dear WebMaster Reader:

Some observers have likened the state of advancement of the World Wide Web to that of television in the early to mid-1950s. It's a comparison that leaves the inescapable impression that we are now at some primitive moment in history. But anyone old enough to really remember '50s television will recall that amid the rudimentary and unsophisticated offerings were also quite a few diamonds in the rough—pioneering shows of true distinction that pointed the way to (and in some cases even surpassed) the best of what that medium offers now.

In the spirit of recognizing comparably groundbreaking Internet and intranet development efforts, we at **WebMaster** Magazine have established the **WebMaster 50/50 Award**. We believe there's a surprising amount of distinguished pioneering work represented among the business sites that now dot the early Web. And we want to unearth it, honor it, write about it, inspire others to imitate it.

So don't hide your light under a mouse pad. We need your help and guidance. In short, we'd like you to tell us a story.

If you are the visionary who presides over an intranet that is transforming the way your organization does business, we want to hear from you. If you are exploiting the Web as the pathway to better workgroup collaboration or enterprise knowledge management, we want to hear from you. If your Web site ROI is off the charts, we want to hear from you. If your external Web is opening up new markets or expanding existing ones, we want to hear from you. If your Web-based electronic commerce initiatives are squeezing cost out of overhead-intensive customer and supplier interactions, we want to hear from you now.

Even if you're none of the above and are actually doing something so novel that no one ever imagined it before, we absolutely must hear from you immediately.

Please go right now to the **WebMaster 50/50** Web site (*www.web-master.com/50/50*) and fill out the nomination form by describing for us the hallmark distinctions of your Web site—whether it's an intranet or an Internet—and the role it plays in helping your enterprise meet its overall business objectives.

In August, we will devote our entire issue to celebrating the 100 initiatives—50 intranets and 50 Internets—that most clearly represent the benchmarks, circa 1997, of business excellence on the Web. We know you're out there. We just need you to tell us what you're doing.

And maybe eventually, decades from now, people will look back on the mid to late 1990s as the Golden Age of the business Web.

Regards,

Lew McCreary
Editor-in-Chief & Publisher
WebMaster

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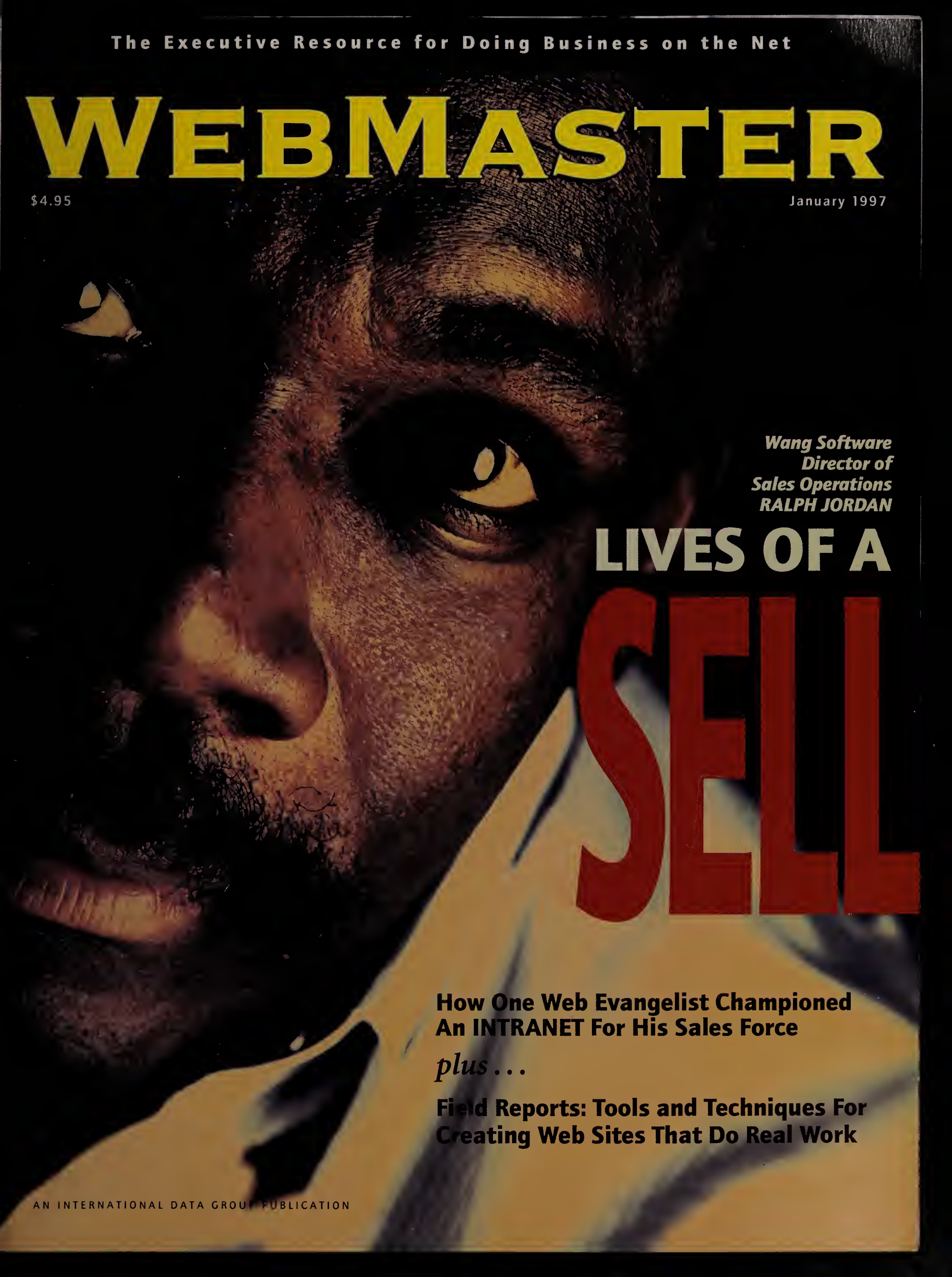

Wang Software Director of Sales Operations RALPH JORDAN

LIVES OF A SELL

How One Web Evangelist Championed An INTRANET For His Sales Force

plus . . .

Field Reports: Tools and Techniques For Creating Web Sites That Do Real Work

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Cover image by Webb Chappell

Now Playing

To satisfy inquiring minds that need an answer *right now*, consultancies are heading to the Internet, where they field questions online and offer special services to companies that pay a membership fee. And for the curious but not committed, free samples are available. See "The Advice Squad" in Threads.

"because they rock," and other

technical reasons why Netscape

uses Silicon Graphics WebFORCE servers,

according to Webmaster Robert Andrews.

When you're the busiest site on the Web, when you receive more than 112 million hits a day, when you download 2.8 terabytes in a single week, you need servers that you can depend on. That's why Robert Andrews, Netscape's Webmaster, turned to Silicon Graphics. Our WebFORCE™ servers combine 64-bit MIPS® RISC microprocessors with the highest data throughput in the market. Our revolutionary S2MP™ system architecture, with industry-leading I/O, performance and scalability lets your Web site handle even the most demanding workloads. And since Silicon Graphics offers the widest range of compatible servers, you can scale your Web site smoothly as your on-line business grows. Technically speaking, it's the best server you can buy. And it can keep your Web site rockin'. For more information visit our Web site at www.sgi.com/Products/WebFORCE or call 800.636.8184 Dept. LS0054.

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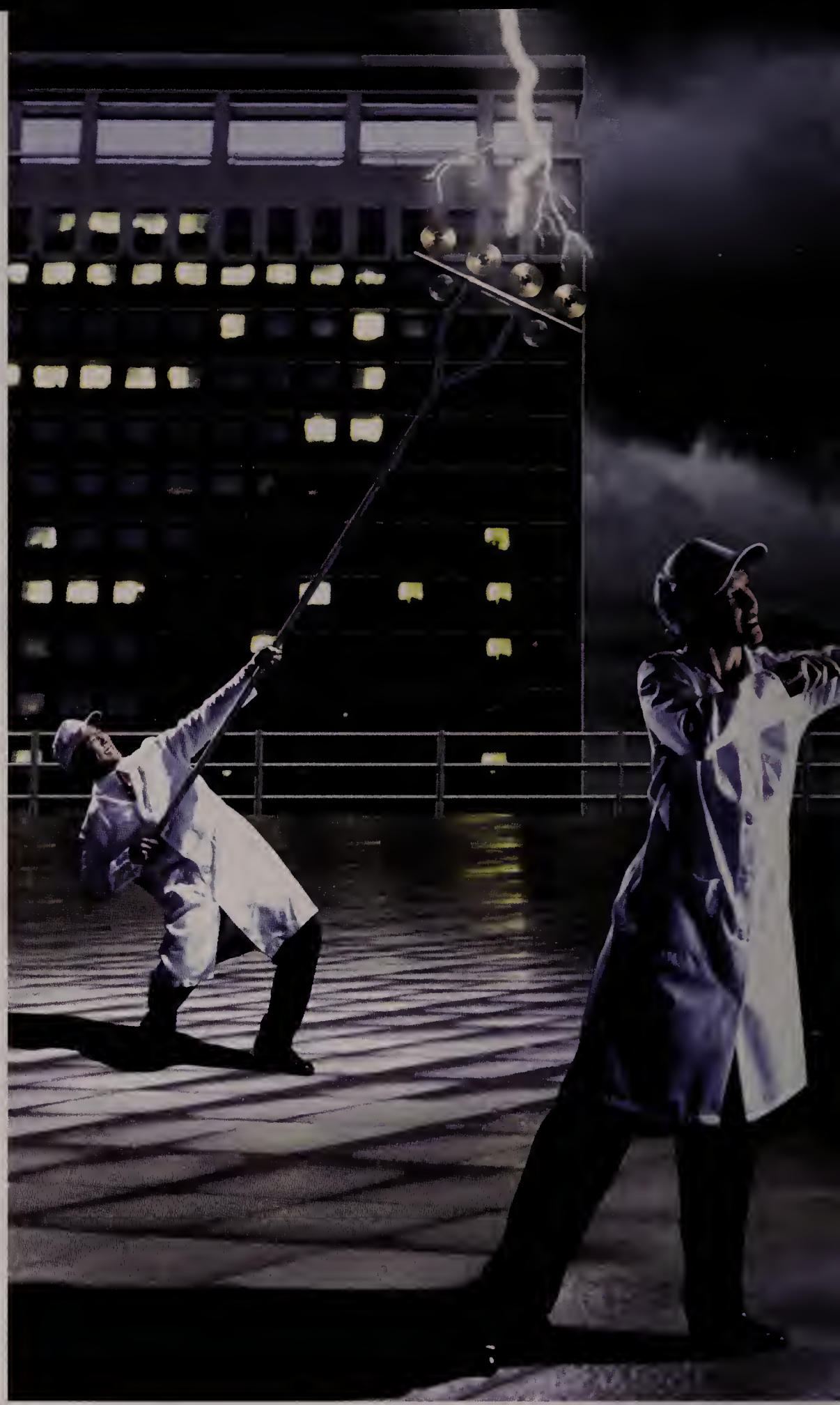

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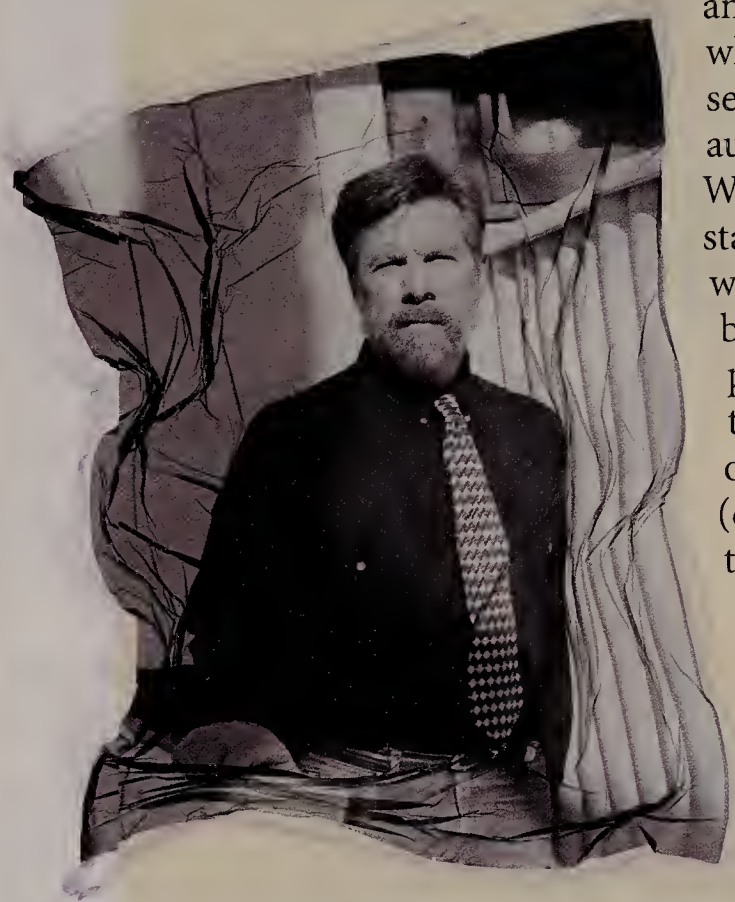
The Web Inside and Out

MANY WILL RECALL that an entire phase of the early Web was given over to contests—scavenger hunts, drawings, trivia tourneys and the like. The objective was to stimulate traffic and simulate interactivity at a time when the overall noise level and glut of undistinguished options was growing into a confusing, inhospitable stew. At roughly the same point, along came the arbiters, raters and reviewers who set themselves up as authorities on Webness and stamped sites with various branded imprimaturs attesting to this or that virtue (chiefly, at the start, coolness).



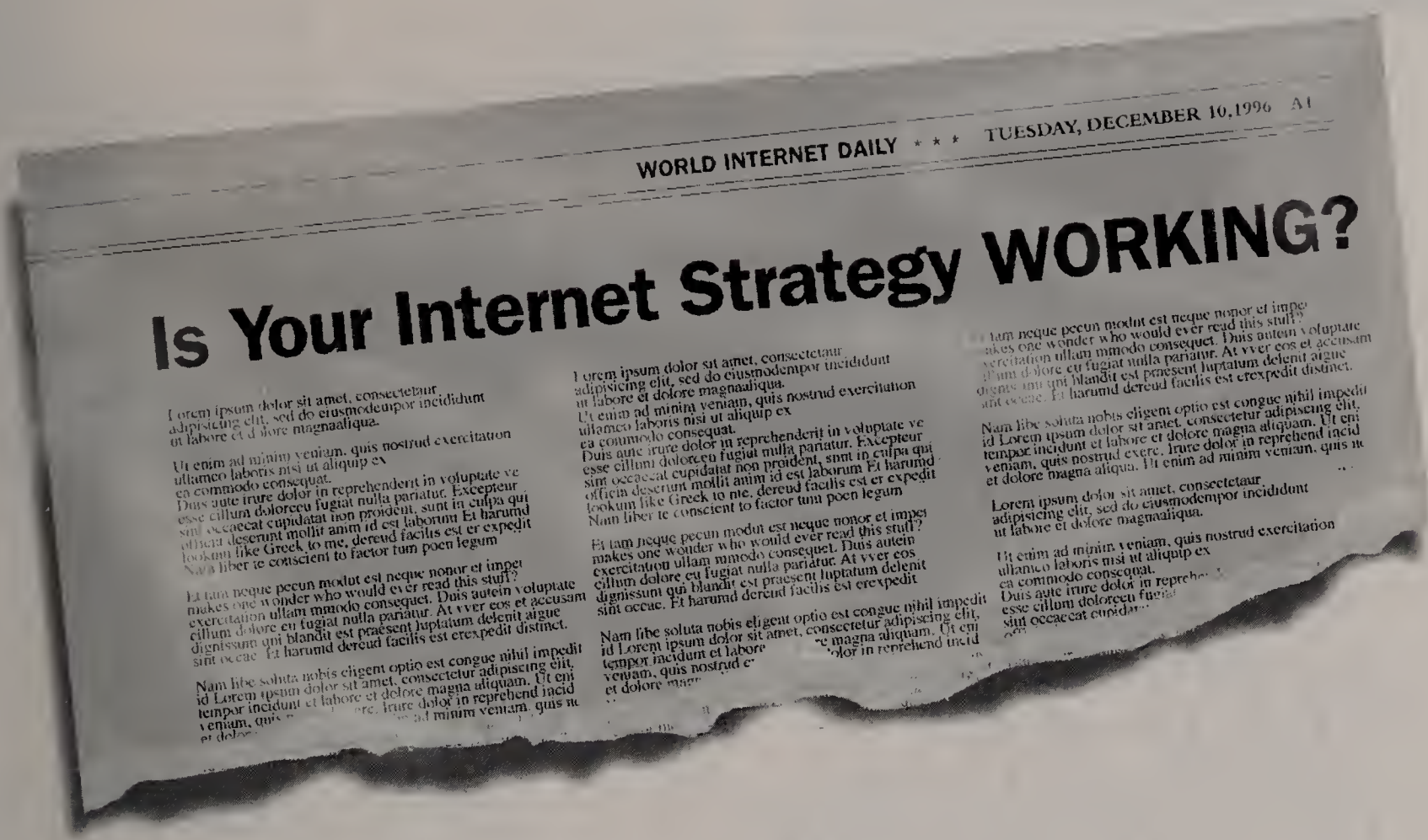
The ostensible point was to help hapless surfers decide which waves to catch and which to paddle past. But, of course, another piece of the strategy was to enthrone the branding authorities as worthy shapers of Web herding behavior. We're not complaining, mind you. In fact, we're pretty pleased that our Web site sports quite a few such stamps. But we're happier still to be launching our own branded imprimatur—the WebMaster 50/50—in a high-minded bid to become worthy shapers of Web herding behavior ourselves.

In August, the WebMaster 50/50 will attempt to define standards of excellence for Internet and intranet initiatives, honoring 50 shining examples of each. So we now invite *WebMaster* readers to visit us online and submit electronic testimony to the excellence of their own Web endeavors—or those of their customers, suppliers, trading partners or sources of operational intelligence. We're not out simply to honor coolness (not that there's anything wrong with being cool); what we're really looking for is Web-enabled business value in all of its many varieties. How does the nominated site leverage Web technologies to serve customers; market and sell goods and services; operate more productively, intelligently or economically; open up new markets or extend existing ones; raise the level (or change the terms) of competition within an industry; innovate by transforming business processes internally; share knowledge across the enterprise; collaborate remotely, both with colleagues and with trading partners; or just generally do things better, more efficiently and more profitably?

To collect the kinds of information necessary to make an informed selection from among what we hope will be a flood of meritorious applicants, we have designed an electronic form, which you will find online at *www.web-master.com/50/50.* The more information you provide about the ends and means of a nominated site or application, the more likely it is to get our attention. The form we've designed will allow you to say quite a bit (we've also provided an example of a completed form that should serve as a useful model). But in some cases we may need to delve deeper, so please be sure to provide the appropriate contact information.

There's nothing especially novel about awards programs. What we believe *is* novel is how our readers are reinventing the ways they do business. What we hope to achieve through

PHOTO BY JERRY MARGOLYCZ



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this first annual WebMaster 50/50 is a snapshot of excellence at a particular moment in the swift metamorphosis of the Web. As the years go by, such snapshots will add up to a record of deepening achievement.

It has been our editorial mission since we launched this magazine in June 1995 to chron-

We're happier still to be launching our own branded imprimatur—the WebMaster 50/50—in a high-minded bid to become worthy shapers of Web herding behavior ourselves.

icle the evolution of Web-enabled business. But you are the ones who will define the components of true excellence. We can't wait to see what you're up to. Questions? Comments? *mccreary@cio.com.*

Lew McCreary
Editor in Chief & Publisher

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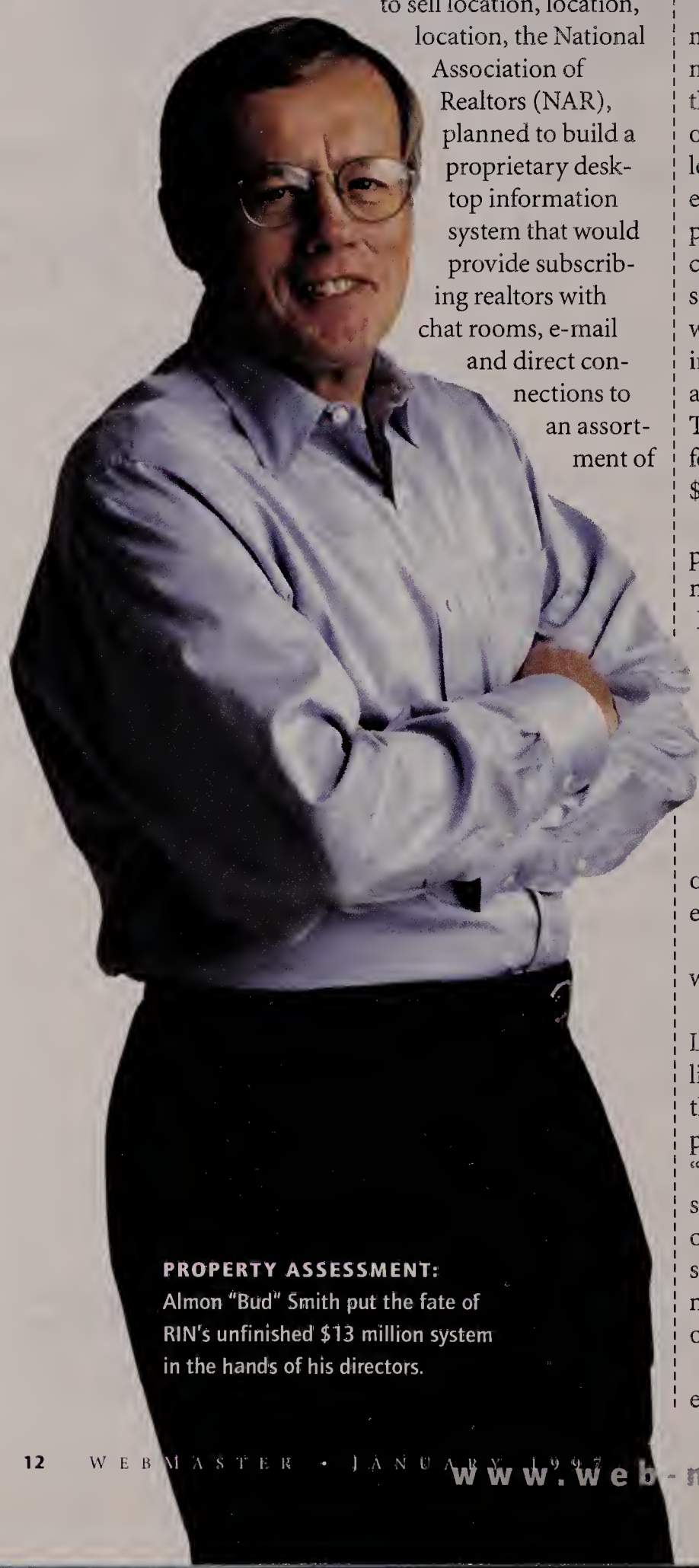

PROPERTY ASSESSMENT: Almon "Bud" Smith put the fate of RIN's unfinished $13 million system in the hands of his directors.

IT STARTED IN MAY 1994 with the best of intentions and the worst of technology. Hoping to find a better way to sell location, location, location, the National Association of Realtors (NAR), planned to build a proprietary desktop information system that would provide subscribing realtors with chat rooms, e-mail and direct connections to an assortment of helpful vendors. For that service, subscribers would pay $6 a month plus $149 for the software.

On paper, the business model of the Realtors Information Network, named for the independent subsidiary of NAR that was to create it, looked good. And it looked even better when RIN expanded the project to include a World Wide Web site, open to all comers, that would earn revenues by listing properties (at $2 a pop) and by selling advertising. The overall revenue estimate for the first year alone was $1.7 million.

Yet two years after the planning began and seven months after the launch, RIN had generated revenues of only $700,000. That was a problem, but an even bigger problem was the astounding amount of money the venture had consumed: $13 million, $11 million of which went to the proprietary system.

Where did RIN go wrong?

One mistake, says Jeff Lubar, vice president of public affairs for NAR, was that the system simply didn't exploit the new technology. "The proprietary desktop system that was being developed didn't use the Internet," says Lubar. "Then the Internet exploded, making the original approach obsolete."

As a result, the proprietary desktop network never delivered on its promised panoply of services, and consequently the realtors never delivered on their subscription fees. Of NAR's 730,000 members, only 2,500 were persuaded to sign up. And the plan to charge realtors $2 to list a property on the public Web site was shelved when NAR discovered that competing sites were giving listings away.

In July, NAR Executive Vice President Almon R. "Bud" Smith threw the fate of the whole project into the hands of NAR directors, putting to a vote the question of whether NAR should try to save the project.

At the end of August the board voted. They would keep the project alive, but with some fundamental changes. Those changes, announced at the NAR annual convention in November, scrapped the proprietary network plan and placed NAR's real estate listings on a Web site called *realtor.com*. The site, managed, expanded and promoted by Los Angeles-based RealSelect Inc., will eventually include a password accessible intranet that will provide all dues-paying NAR members with free information about relevant legal and legislative issues.

"It is and will be what we had hoped RIN would be," says former RIN Board Chairman William S. Chee. "Only better." —*Art Jahnke*

PHOTOGRAPH BY RON HOLTZ

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CURRENT ISSUE

POWER is a Beautiful Thing

Dialing for Dollars

YOU SAY YOUR webmastery has revealed *the* killer app, and now you need a few bucks to make it real? Try looking online. Most of the big boys of venture capital are there, trolling for genius and touting their latest IPOs.

But there's another way to match your idea with money. It's the brainchild of Micky T. Morgan, a marketing innovator and entrepreneur. In late 1995, Morgan launched The Venture Information Network for Entrepreneurs Inc., or The Vine (*www.thevine.com*). She describes the Web site as "a virtual community of entrepreneurs, capital providers and service providers who seek to finance and support one another in the process of growing companies."

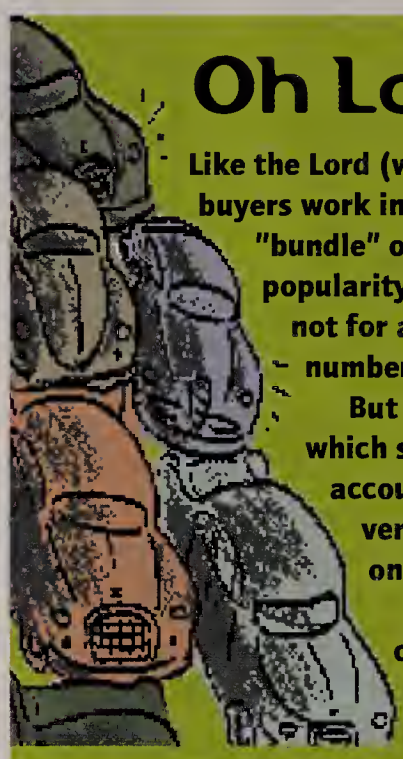
PENNIES FROM HEAVEN: Micky Morgan's Web site matches angels with entrepreneurs.

Morgan's own venture is designed to bring hopeful entrepreneurs to the attention of optimistic angels, and optimistic angels to the attention of hopeful entrepreneurs, who may or may not be posted on The Vine.

Entrepreneurs pay a setup fee of from $100 to $1,000 and a maintenance fee of from $50 to $100 per month to post their ideas for six months; they can renew after six months with no new setup fee. Providers of capital or services pay a $300 to $3,000 setup fee and from $50 to $200 per month in maintenance for the same time period. Like entrepreneurs, they can also renew after six months with no new setup fee.

"Our objective is a high-quality deal flow that gets funded," says Morgan, sounding like a venture capitalist herself. So far, however, she says she doesn't know of any entrepreneurs on The Vine who have actually made deals with capital providers. The one thing being financed is her site.

Oh Lord, Won't You Buy Me...



Like the Lord (with whom they are said to feel a close kinship), advertising agency media buyers work in mysterious ways. Several agencies now offer to place a client's ad on a "bundle" of Web sites, chosen for their overall popularity or, in some cases, their popularity relative to other sites with similar content. The clients pay the agency not for ad space per se or for the volume of gross traffic to the site but for the number of impressions on the page on which the ad is placed.

But in an environment as nebulous as the Web, is it even possible to agree on which sites are the most popular or the best designed? We looked at four lists accounting for a total of 180 sites, provided by four of the best known Web advertising agencies, and found that not one single site appeared on more than one list. Surprising? Not to spokespeople at the ad agencies.

"It's not an apples-to-apples comparison," explains Bob Namar, marketing communications manager at Web ad agency DoubleClick Inc. "People find one resource to rely on and just ride that horse. Other agencies may have different expectations of the sites where they advertise."

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THE COMMONWEALTH NETWORK/INTERACTIVE IMAGINATIONS INC. *commonwealth.riddler.com*	$15; more for premium sites	$7.50	Wide open, but will not deal with indecent or "hate" sites.
NARROWCAST MEDIA *www.narrowcastmedia.com*	$15; more for customized or targeted campaigns	$7.50	Design and special interest
WEBCONNECT/WORLDATA INC. AND CMP MEDIA INC. *www.worldata.com*	Varies	70 percent of price charged to advertiser	Traffic and professionalism, in that order

ILLUSTRATION BY PETER ALSBURG

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Just Enter No

WE'VE READ A GREAT DEAL about corporate management's concern that employees may squander precious working hours surfing the Web. Now management has something else to worry about: IAD, or Internet Addiction Disorder.

Some researchers claim that many people who constantly Web-surf or repeatedly check e-mail aren't just enthusiasts—they're hooked. Kimberly S. Young, a clinical psychologist and founder and director of the Center for On-line Addiction (*www.pitt.edu/~ksy*) at the University of Pittsburgh at Bradford, says the phenomenon is as real as the insatiable craving for drugs, alcohol or gambling. And self-identified addicts (who typically appreciate all too well the irony of being called "users") say their habit can be just as damaging. In surveys, interviews and discussion groups, these unfortunates claim that Internet addiction has devastated, variously, their grades, bank accounts, marriages and careers.

In "The Internet Usage Survey," conducted by Viktor Brenner, a member of the Department of Counseling and Educational Psychology at Marquette University's School of Education, approximately one-quarter of the 185 persons who responded in the first month said their job performance had deteriorated with the growth of their online obsession. (Brenner's report on the first 30 days of the survey, slightly skewed because it was conducted online, can be found at *www.ccsnet.com/prep/pap/pap8b/638b012p.txt.*)

Because IAD is a relatively unobtrusive disorder, it is unlikely to attract the attention of corporate management. One thing managers can do is advise employees of certain clues that they may have crossed the line between normal use and unhealthy dependence. Says Young, "Symptoms include a loss of control, waking up early just to check e-mail, loss of interest in hobbies and other social activities, social withdrawal from real-life relationships, and continued use of the Internet despite problems it is causing in your real life."

Other researchers have identified the following warning signs:

- Losing track of time spent online
- Cutting back on sleep or skipping work, classes or other engagements to stay online
- Big telephone or service provider bills
- Physical problems such as blurry vision, backaches or sore wrists
- The feeling that life online is more real or more important than real life

Researchers say there is good news and bad news. The good news is that help is available. The bad news is that much of that help, in the form of user groups and e-mail, can be found only online. —*Anne Stuart*

Famous Last Words

"Given the adequacy of existing cash and check systems, there appears to be little incentive for banks or other payments service providers to invest in new technologies..."

From "The Role of Banks in the Payments System of the Future," a report published in September 1996 for the American Bankers Association

Users and Losers

Percentage of companies surveyed that experienced information losses due to security failures and disaster in the past two years

NUMBER OF SURVEY PARTICIPANTS: 1,320 CIOs and other senior information exectutives

SOURCE: ERNST & YOUNG LLP / *INFORMATION WEEK* FOURTH ANNUAL INFORMATION SECURITY SURVEY

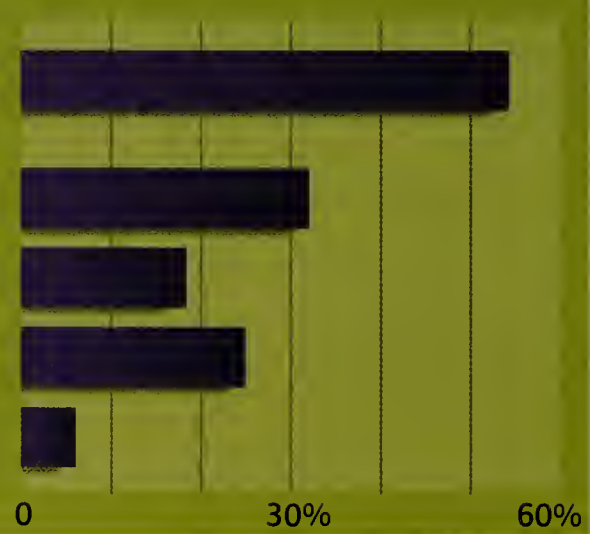

ILLUSTRATION (LEFT) BY JIM DEACON / (RIGHT) BY MARGARET HATHAWAY

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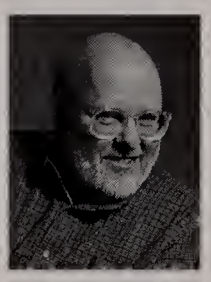
Moderator

Lori Fena



Tim Horgan

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Nicholas Negroponte
Keynote Speaker

Any executive hoping to mine the rich potential of the Web as a business medium must in fact develop two resources simultaneously: the Internet and their intranet. For each of these critical development efforts, the issues are importantly different — and in some cases involve entirely different governance structures and processes. At our second *WebMaster Perspectives* conference, attendees will learn about some of the key challenges and opportunities in deploying both internally and externally focused Webs.

A Tale of Two Webs: Making Your Intranet and the Internet Pay Off will explore the critical challenges that must be managed and optimized when developing both internal and external Web initiatives.

A Tale of Two Webs brings together both experts and practitioners on the development of both Internet and intranet strategies and business plans. You will hear experts like **Nicholas Negroponte**, founder and director, Media Laboratory, *Massachusetts Institute of Technology*, **Lori Fena**, executive director, *The Electronic Frontier Foundation*, **Tim Horgan**, former webmaster, *Digital Equipment Corporation* and currently webmaster, *CIO Communications, Inc.* and **Lew McCreary**, publisher and editor-in-chief, *WebMaster Magazine*.

Geoffrey Moore, author of *Crossing the Chasm* and *Inside the Tornado*, will moderate the conference and set the stage for our discussions. Moore is a highly respected authority on the Technology Adoption Life Cycle, shifts in market strategy and teachings on tactics for succeeding in each stage of the cycle.

To secure your place at **A Tale of Two Webs: Making Your Intranet and the Internet Pay Off**, complete the on-line enrollment form at http://www.web-master.com; complete the enrollment form on the back of this brochure or simply call us at 800-355-0246 to register by phone.

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MODERATOR

Geoffrey Moore
President
The Chasm Group
Author
Crossing the Chasm
Inside the Tornado

FEATURED PRESENTERS

Nicholas Negroponte
Founder and Director
Media Laboratory
Massachusetts Institute of Technology

Lori Fena
Executive Director
Electronic Frontier Foundation

Tim Horgan
Webmaster
CIO Communications, Inc.

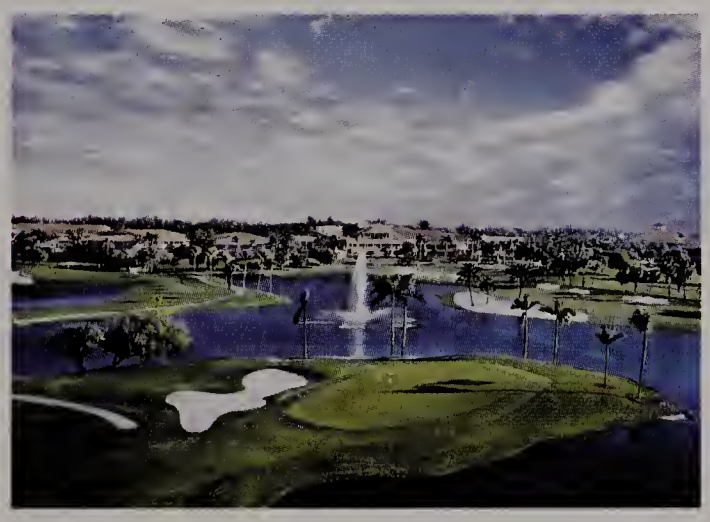
Lew McCreary
Publisher & Editor-in-Chief
WebMaster Magazine

I wish we'd brought our CEO, our President, half our MIS staff and our key creative people.

Kevin Gordon
Vice President
Concept Development
Best Buy Company

The WebMaster conference has been an extraordinary learning and networking experience. Very thought provoking. Well done!!

Charles Beck
Management & Business Systems
Solrac PTY, Ltd.



This conference delivered more than technology...it provided an opportunity to learn, interact and take responsibility for technology, corporation, community and society direction.

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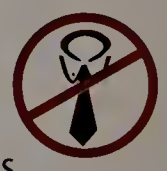

HOTEL ACCOMMODATIONS

A block of rooms has been reserved at the Doral Golf Resort & Spa. We urge you to make your reservations early by calling the hotel at 305-592-2000. Be sure to identify yourself as part of the WebMaster conference to receive the conference rate, and make your reservations early. Please guarantee your room with a credit card, as all unreserved or unguaranteed rooms will be released on 4/14/97. Hotel reservations/cancellations and charges are your responsibility. WebMaster will make hotel reservations for government and military participants only.

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All enrollment fees must be paid in advance of the meeting. Fee includes conference sessions, concurrent sessions, corporate host displays, conference materials and scheduled meals. Transportation, hotel and recreation are your responsibility.

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You may cancel your enrollment up to 5/9/97 without penalty. No refund or credit will be given for cancellations received after 5/9/97. You may send a substitute in your place.

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Lori Fena

The Advice Squad

THE WEB IS, of course, an irresistible soapbox for people who are in the habit of telling others what to do. For major league consultants—companies like Ernst & Young LLP—however, the Web presents a problem. How do you show potential customers the true depth of your expertise without giving it away?

The answer, in Ernst & Young's case, was to build two Web sites, one to entice potential clients and one to serve already-paying clients. The big accounting firm designed a general informational teaser site (*www.eyi.com*) as well as another, members-only site named Ernie (*ernie.ey.com*). Subscribers to Ernie pay $6,000 a year, for which they get access to an FAQ database, a news clipping service and the privilege of asking questions and having them answered by "knowledge workers" who specialize in the area of the inquiry.

Gartner Group Inc., a computer and information technology consultancy, has taken the plan a step further. It also has two Web sites: one (*www.gartner.com*) to show visitors what it does and another, @vantage (*www.atvantage.com*), that does it. But unlike Ernie, @vantage gives users access to the services of several consultancies that are partnering with Gartner. Visitors who register may read documents, some free, some on a pay-as-you-go basis. Or they may sign up for premium services, available to those who pay a membership fee, which varies from partner to partner. Gartner's own entry is the Gartner Group Premium service, where for $4,800 a year ($2,000 a year for Gartner clients) subscribers have access to monthly summaries of research, weekly reviews of new research, interactive events and regular market analyses.

Probably the most ardent practitioner of online consulting is the Giga Information Group Inc., which delivers reports and a peer-to-peer network through its site, GigaWeb(*www.gigaweb.com*). The pay-to-play and password-protected service has about 2,000 users. WM

You May Already Be A Winner

Webmasters (and their colleagues) take note: The WebMaster 50/50, an awards program that will recognize 50 outstanding Internet and 50 outstanding intranet initiatives, begins accepting entries Jan. 13, 1997. Entries can be sites, projects or entire environments fielded by corporations, government agencies or nonprofit organizations. They must be closely aligned with a clearly defined business goal such as marketing, customer service, electronic commerce, collaboration, sales or supply chain management. Content, design and technology matter, but the chief criterion is that the nominated sites or initiatives deliver real business value to their organizations.

Winners will be honored in the August 1997 issue of *WebMaster*. Readers are invited to nominate themselves or someone else by filling out the application form that can now be found online at *www.web-master.com/50/50*. For more information, contact Editorial Administrative Assistant Lisa Kerber at *kerber@cio.com*

The Best Address

Remember that 1980s phenomenon known as gentrification, whereby declining urban neighborhoods were suddenly transformed into glittering "historic districts" and corner luncheonettes sold out to sushi bars? Well, something like that happened to the cyber-neighborhood that belonged to Chuck Jones, a financial planner who was lucky enough to secure the domain name *investing.com*.

In June, Jones received a phone call from someone wanting to know if he would be willing to accept $100,000 for the domain name.

"I told them I wouldn't," he says. "They said, 'Well, I guess it's not for sale.' I said, 'No, you just haven't hit the right price.'"

Jones hired marketing company Multimedia Marketing Group Inc. (which runs the MMG Internet News Bureau Online Press Release Service) to help him get the right price. MMG issued a press release announcing Jones's plan to sell "Wall Street's best Internet address" to the highest bidder. Jones's initial asking price? $500,000. —Art Jahnke

ILLUSTRATION (TOP) BY MARGARET HATHAWAY / (BOTTOM) BY JIM DEACON

search: sports fan + rabid

Looking for something? Excite on Sun.

Sun, one of the biggest, smartest powers behind the Internet, is now the power behind one of the biggest, smartest search engines on the Web – Excite. PC World was so impressed they gave them an A+ and said, "Quite simply, Excite delivered what we were looking for better than any other engine." All we can say is way to go team. **THE NETWORK IS THE COMPUTER™**

Sun microsystems

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In The Zone

IN THE COOL, COOL WORLD OF MULTIMEDIA GAMES, STEVEN KANE IS WINNING WITH A VERY UNCOOL AMUSEMENT **BY PETER FABRIS**

THREE YEARS AGO, before the World Wide Web was a household word, Steven Kane believed that he could put it to work for his medical plastics company. Most of his customers—academics and research scientists—were already wired to the Internet, and Kane wondered if he could use that medium to advertise and possibly sell the test tubes, pipette tips and other products that he manufactured. But instead of selling plastics, Kane ended up selling his company, and consequently found himself in a position to start a new business, doing something—anything, in fact—that really interested him.

Intrigued by what they had learned about the Web, Kane and his partner, Stuart Roseman, started NineCo Inc. and tinkered with several Internet-based ideas. Kane, the president, was the concept guy; Roseman, the chief technology officer, was the techie. Their first inspiration was an Internet videoconferencing tool. But while the software worked well, some of the other technologies needed to popularize videoconferencing did not—and would not, Kane thought, until the Internet's bandwidth constraints were eliminated. So Kane and Roseman took their core technology, which allowed numerous people to interact in a single virtual space, and applied it to a new activity: multiplayer games.

But what kind of game would really draw people in? Instead of imitating the innumerable hunt-down-and-slaughter games that have evolved online, Kane looked at games people play in the real world. What he found was radically uncool: bingo.

Bingo is, after all, the most popular social game in the country, with thousands of churches and other organizations reaping tens of millions of dollars from weekly sessions. It was also a game that Kane believed had no competition online. And while many people consider bingo a form of gambling, and many law enforcement agencies consider gambling online to be against the law, Kane had an idea about that, too.

Gambling, he learned from his legal advisors, is gambling only if players risk money on the outcome. If bingo players did not wager or risk losing money, the game would not be gambling and thus would not be illegal.

BIG GAME HUNTER: Steven Kane's Bingo Zone has more than 100,000 registered players.

Unfortunately, making the game legal introduced a major problem: If no one paid to play, revenues would be zero. But maybe, he thought, if his game attracted enough players, it would also attract advertisers. Forget Bingo Night down at St. Anthony's: Kane's brainchild would be more like a TV game show. And

PHOTOGRAPH BY FURNALD / GRAY

thus was born The Bingo Zone (*www.bingozone.com*).

THE BINGO ZONE, which launched last April, invites anyone with Internet access to play. New games start every 30 minutes, 18 hours a day on weekdays and 24 hours a day on weekends. As the system's random number generator reveals new numbers, players mark off their three assigned bingo cards with mouse clicks. The system notes each "B-02," "I-12," "N-22," etc. When a card is filled, the player clicks on a "bingo" icon, and the system verifies the claim. As in regular bingo, the game stops when the first winning card is confirmed, and the other players are allowed to check their cards for bingo.

The winning purse varies from game to game—one game a day pays $20, one pays $15, one pays $10, and the rest pay less than $10 apiece. In the case of a tie, winners split the purse.

Kane says he mails out about 2,000 checks per month, and he hopes to eventually supplement those cash prizes with merchandise provided by sponsors. But sponsors are hard to come by, even for a site like his, where each game draws an average of 600 players and there are 1,200 games a month. So far, The Bingo Zone has signed up Microsoft Corp.'s Internet Explorer, Lands' End Inc., Sportsline USA Inc. and the AT&T College Network, among others.

Predictably, Bingo Zone visitors defy the profile of the stereotypical bingo player. Kane's statistics show that 60 percent are between the ages of 18 and 34. Only 5 percent are older than 55; 29 percent are students; 13 percent are engineers; 12 percent are homemakers; 49 percent are women.

Kane says he has gone after advertisers who are already Web-aware and have "Webvertising" strategies. "We don't want to be the people that first convince an advertiser to go online," he says. "We like to fish where the fish are."

To make his site more ad-friendly, Kane is offering options other than standard banner advertising. When he pitched a national soft drink company, for example, he designed a mock-up of the online game board replete with that company's logos. And he says the interactive nature of game shows opens additional avenues for advertising—e-mail messages notifying players that they have won could be sponsored, for example. Kane has also introduced something he calls "the 30-second spot" that shows players who are between games a page where the Web sites of sponsors appear for 30 seconds at a time.

Kane says he is pleased with the site's progress. The Bingo Zone has more than 100,000 registrants and is adding at least 500 a day.

He cites two reasons for the Zone's popularity. The first is the simplicity and wide recognition of bingo. "We wanted a game that everybody could play immediately," he explains. "We didn't want to have to teach people how to play the game."

The second reason is the simplicity of his technology. "We're the only multiplayer game site that requires only a Web browser to play," Kane says. Other, fancier entertainments require Java, Macromedia Inc.'s Shockwave or other plug-ins.

To keep people coming to his site, Kane advertises The Bingo Zone online and in print. He has placed ads in *Wired* and *The Bingo Bugle*, a newspaper devoted to bingo, and on the Web site Rolling Good Times On-Line (*www.rgtonline.com*). Cool Site lists have been helpful as well. Kane's research shows that 21 percent of his visitors connect via such lists.

STILL, KANE SAYS The Bingo Zone, like most Web sites, benefits most from word of mouth. To encourage the buzz, he and Roseman are trying to build a sense of community for "Zoners" with *ZoneZine*, a monthly e-mail update of Bingo Zone activities, and a chat forum. He says he is not surprised that Zoners are responding.

One Bingo Zone regular, for example, submitted a variation on comedian Jeff Foxworthy's "You might be a redneck if..." shtick: "You might be a Bingo Zone junkie if..." Other Zoners chimed in with dozens of replies: "You check the clock during sex to see if it's time for the next game"; "Your dogs understand 'not until this game is over' as a command"; and "You believe you can send your child to college from your winnings."

That last entry is wishful thinking. As of Sept. 27, 1996, the top prize winner had amassed a cumulative total of $169.

The Bingo Zone is only the beginning of what Kane hopes will be a Web game show empire. "Eventually, we want to be the King World [the company that distributes *Jeopardy* and produces and distributes other game shows] of the Internet." WM

Staff Writer Peter Fabris can be reached at pfabris@cio.com.

www.bingozone.com

The Mail Mystique

THINK USING E-MAIL IS A NO-BRAINER? THINK AGAIN.

BY JIM STERNE

This is not going to be a Metcalfesque invective proclaiming the death of e-mail. Far from it. E-mail isn't going away. As Kim Polese, co-creator of Java at Sun Microsystems Inc. and now a founding member of Marimba Inc., says of the entire Internet, "It won't die, because we won't let it."

She's right on the mark. It's too important to us. Even the talkative Charlie Rose took time out from his recent PBS interview with Esther Dyson and Jim Barksdale to describe how e-mail has changed his life. You probably remember your first e-mail as clearly as your first kiss. OK, so kissing may be more fun, but it's a lot harder to "cc:" somebody.

Still, e-mail has more than a couple of drawbacks, not the least of which is our dependence on it. That dependence was brought home to me in a big way when my modem went out during one of those bouts of travel that make one ponder the value of frequent flier miles. Hanging out at Internet conventions as I do and having a knack for finding cybercafes made this predicament merely grossly inconvenient rather than crisis-inducing.

I did almost lose a contract while in the Australian rain forest. When I returned to my desk, I found a series of increasingly imperative e-mails warning, "If you don't respond, we will have to schedule somebody else in your place!" All I could think was, "My voice-mail system works flawlessly. Why didn't they think to use the phone?"

Crossed messages, lost messages and e-mail gateway conversions have troubled us all. But a larger reason for concern stems from our heightened expectations for the medium. Whether you're trying to communicate with customers, vendors or co-workers, there are a few issues to think about when zipping off your next message.

ILLUSTRATION BY PAMELA HOBBS

The Margin Call

How many times have you received an e-mail formatted like this paragraph? Clearly, the software used to create the message is not compatible with the software used to read it, and the resulting ragged line breaks decrease readability to an all-time low. Do the writers simply not understand the difference between word wrap and hard carriage returns? Have they no compassion for those of us who get more daily e-mail than can be slogged through in a scant 12 hours? Will they never hit the "return" key and cut us a break? No. And they shouldn't have to.

They should instead rely on the goodwill of e-mail package developers, who will—someday—band together to create a standard. Yes, the MIME thing is a major embarrassment. ("Sorry, boss, but the spreadsheet you attached didn't make it through the gateway in Pittsburgh. Could you fax it, please, so I can rekey all 20 pages?") But if Netscape Communications Corp. can get a dozen companies together for an Internet calendaring summit to create a common update protocol, surely e-mail makers can figure out the ragged-edge problem. Until then, Miss Manners says: Be kind; use the return key.

In general, my advice boils down to a few rules: Use a standard, fixed ASCII font like 10-point Courier. Don't use

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tabs. And make sure your lines are shorter than 70 characters; that way, when people quote you, the lines won't be run ragged by > marks.

But with e-mail—as with the Web—the matter of format rides a distant second to content. E-mail falls somewhere between the spoken word and the written word. When an e-mail beeps onto your screen, there is a feeling of instant communication; somebody wants to tell you something *right now*. The natural reaction is to respond at once, with the same informality used when passing a note in school or making a casual phone call. "Were you at the meeting with the new boss?" "Oh, yes. What a dipwad! That guy couldn't find his own cubicle with a compass and an autographed copy of *The Dilbert Principle*."

What would have been a casual remark passed around with the morphing accreditation of an urban legend is now a document set loose on the world's largest copy machine—forwarded, posted, printed and deposited on the new boss's desk. *D'Oh!*

One thing we'll never get computers to do is make us smarter. If only the grammar checker could do for my meaning what spell checkers do for my phonetic education. Crafting a proper e-mail requires skill, and that implies training. Do you have an e-mail course at your company? How about a policy? Guidelines? Can just anybody post a message to the public newsgroups from a company e-mail account?

If your company doesn't have a policy for using e-mail, create one immediately. Emphasize clarity and professionalism. Help employees understand how the casual nature of e-mail can be misleading. Apply the same rules to the company's e-mail capability that you do to the phone, the fax and the copy machine. If employees cannot live without posting daily to a bicycle racing newsgroup or a *Beverly Hills, 90210* fan club, tell them to get private e-mail addresses. The office account, with *@company.com* attached to the user's name, should be treated with respect, like the corporate stationery that it is.

Passionless Persuasion

UNIVERSITIES have been experimenting with distance learning for years. The technology is getting much better. The transmission speeds are getting faster and faster. Why, then, aren't the students getting smarter and smarter?

More than one professor has told me that students bouncing ideas off one another generates far more "education" than course materials can. Each student reads the same passage with different eyes. Their interpretations conflict, sparking argument, discussion and more new ideas and interpretations. That is the process of learning how to think. We may have harnessed lightning and used it to teach sand to think, but it'll be a cold day in Sunnyvale before computers can do the same for humans.

Do you have an e-mail course at your company?

Can heated discussion occur online? Certainly. But it's colder and staler online than in a classroom, a dorm room or a beer hall. It doesn't have the same passion or carry the same weight. Yes, e-mail makes it easier for the quiet ones sitting in the corner to participate—and in their own time rather than in real-time. But four sequenced text files just don't fire up the imagination like four voices struggling to be heard. Professors seem happy with distance learning when the teacher is distant and the students are together. But the grand experiment of home study over the computer is foundering.

Large corporations face a different problem: coming to closure on issues. E-mail may be fine for the road warrior, but geographically dispersed project teams are much harder to manage long-distance. An issue may be electronically dissected while the boundaries are explored and the topic well and truly analyzed. The pros and the cons may be pored over ad infinitum while different members reach their own conclusions. But when it's time to make a decision and act on it, the team members are happier to continue discussion.

A roomful of people gets the message immediately when the group leader says, "Thank you, we've discussed that one enough. It's now time to turn our attention to other matters." That message in e-mail might be met with another round of, "But wait, you forgot about this!"

About 98 percent of the meaning of an issue-closing statement is lost in e-mail. When the leader appears in person, his tone of voice, body language and scowl can be heard, seen or sensed by team members. The item is closed. The next item on the agenda can be addressed, and productivity doesn't bog down waiting for discussion to conclude. That's why Bill Gates is expanding his campus in Redmond, Wash., instead of duplicating it all over the world. There's nothing like bringing people together to create camaraderie, brainstorm and make decisions.

So while e-mail may be the best thing since plain-paper fax machines, it cannot replace the personal touch. As Nicholas Negroponte likes to say, the best peripheral for the Internet is a 747. WM

Jim Sterne (jsterne@targeting.com), *president of Target Marketing of Santa Barbara, is an Internet marketing strategy consultant and the author of* World Wide Web Marketing *and* Customer Service on the Internet.

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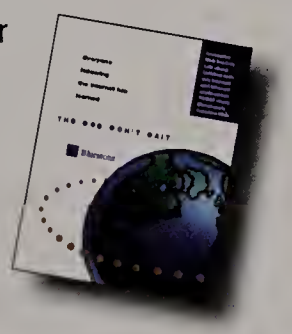

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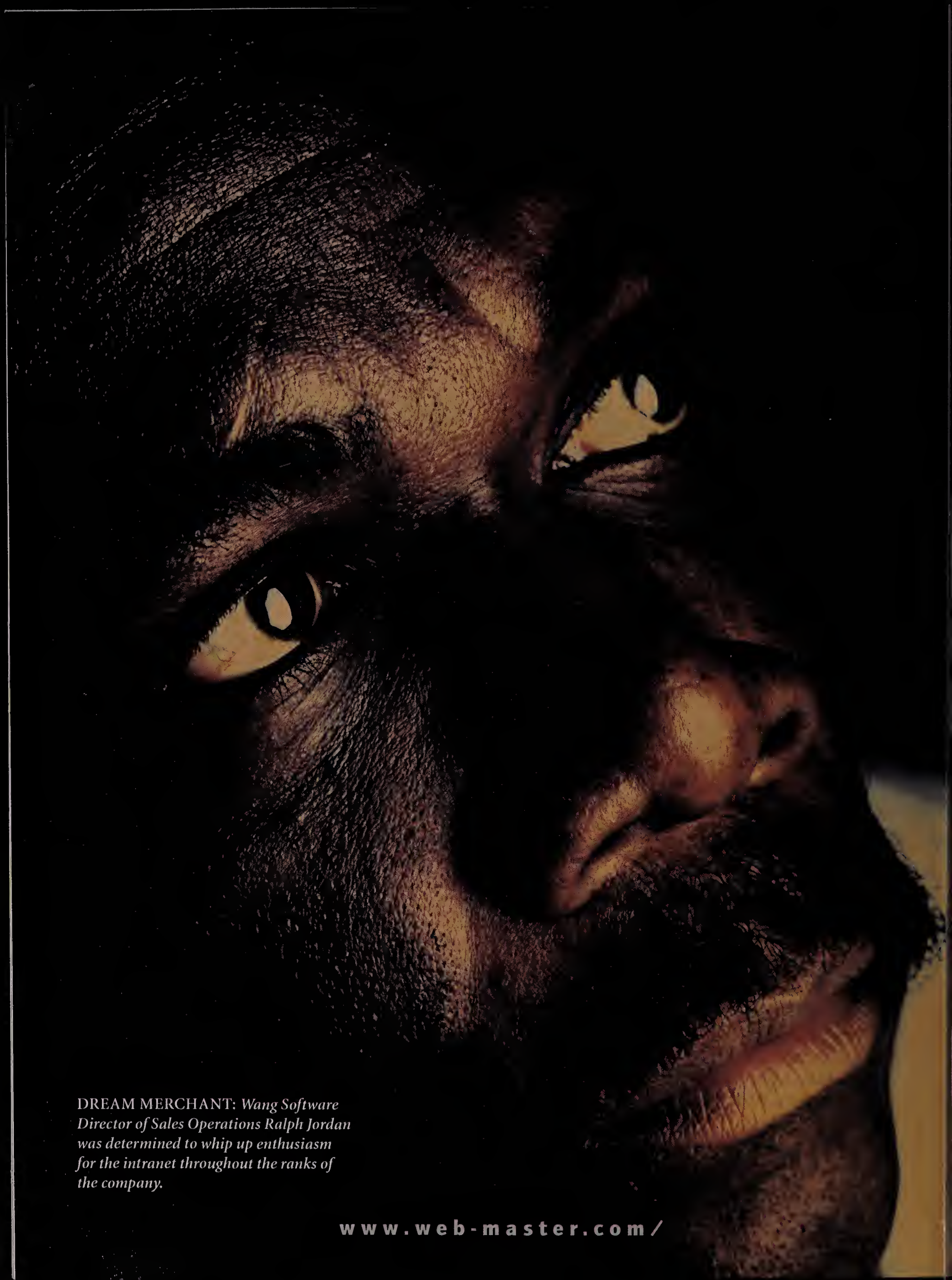


DREAM MERCHANT: *Wang Software Director of Sales Operations Ralph Jordan was determined to whip up enthusiasm for the intranet throughout the ranks of the company.*

An intranet promised to give Wang's salespeople everything they dreamed of. But getting one built required the biggest sales job yet.

By Cheryl Dahle

Sellular Chemistry

Not everyone appreciates the value of a clean, crisp original document. Wang Software's Jeff Hausdorf is someone who did, and he took excellent care of his hoard of fresh-from-the-printer sales materials. Hausdorf, Wang's partner development manager for the Southeast district, knew you couldn't pitch a new customer using product data sheets with blobby letters and photocopied lint bits so big they made the page look like a Rorschach test. So he encased his originals in plastic sleeves and stored them on a special shelf in his office. He could sometimes make do with an exceptionally good first copy (stored on the next shelf down) by spending some quality time with a bottle of white-out.

The thing Hausdorf dreaded most was trying to find a new original. At Wang corporate headquarters in Billerica, Mass., it could take a week or two to locate the person who could deliver the document he needed. While Hausdorf queued up in the Wang information bread line, hungry customers went to competitors.

"You were dependent on how good a filing system you kept," Hausdorf says. "And if you didn't know about the existence of a particular data sheet, there was no way you were going to find out about it. You just missed out."

That was just the beginning. Field reps couldn't get their e-mail, let alone log onto the company mainframe to access the meager collection of poorly labeled, outdated documents there. Sales support people were constantly tied up on the phone with reps who were pleading for information. All in all, it was a frustrating exercise, and it was particularly embarrassing because the product that all of this dysfunction was trying to sell was workflow software—tools to help other companies get a handle on their processes.

In part, the difficulties were a byproduct of a sales model that necessity built. When Wang Software's parent company, Wang Laboratories Inc., emerged from bankruptcy in September 1993, it had shed more than $1.3 billion in debt as well as 7,000 employees and virtually all of its market credibility. After the reorganization, Wang Software was reborn as a lean and hungry new business unit—with few salespeople and even fewer sales offices.

PHOTOGRAPHS BY WEBB CHAPPELL

But by 1994, the field sales and sales support force had grown to 150 people, all of whom had complaints about the information rationing. What Wang executives finally did in response changed not only the way sales reps sold but the way the software business unit produced and distributed information. Pulling off that kind of shift in collective thinking wasn't easy. It was harder than trying to teach an old dog new tricks. It was like trying to resurrect Old Yeller and get him to polka.

"X" Marks the Spot

Oct. 9, 1994. That was the day Ralph Jordan, director of sales operations at Wang Software, decided that the information problem child was his to adopt. He called a meeting at the old Wang Towers in Lowell, Mass., with project manager Neena Mathur, and together they listed the new system's goals: to allow the field to get information it needs from corporate when it needs it and to let the field share its experience troubleshooting and selling with peers and the company. They also drew up a list of requirements: that people be able to get information whenever they want it and in a form that they can use; that the system be compatible with the technology of the sales force and business partners, such as Big Six firms and systems integrators; that the information be up-to-date all the time, with no pileup in the in-box; and that the interface be easy enough so as to make training superfluous.

Jordan approached the whiteboard and drew a "V" with the open end facing left to indicate information traveling away from the company. Then he drew a mirror image of the "V" next to it, apexes joined, to represent information coming in from the field. He circled the "X" intersection of the two.

"This is the point where you have perfect knowledge," he told the others. And so the idea for the Wang Knowledge Exchange intranet was born.

Ralph Jordan has what several people on the Knowledge Exchange team describe as a "presence." He speaks with a quiet confidence that implies not only that he is right but also that he knows his listener will come to agree. For that reason, he makes an ideal evangelist for new and not-entirely proven solutions. That was a good thing because as the project team considered the requirements for the new system, World Wide Web technology emerged as the most likely salvation. Jordan knew that a project as far-reaching and demanding as a corporate intranet would need executive sponsorship.

First, he talked to his boss, Steve Quehl, senior vice president of field operations, about the options the project team was discussing. He even gave Quehl a brief demonstration of what the Internet could do. It turns out that Jordan wasn't Quehl's only mentor; his children were also making the case by using the Net to research their homework.

"I suppose I linked the concept of what my children were doing to what salespeople would need on a day-to-day basis to get their jobs done," says Quehl. "Once I was sold, it was a matter of painting the vision for other people who could see past the costs of putting this in place and focus on more of the benefits."

So Quehl began selling the project to the top brass—which included William Everett, vice president of finance; David Goulden, senior vice president for business development; and eventually Robert Weiler, the new president of Wang Software, who signed on in December 1995.

Jordan knew he also had to whip up some rank-and-file enthusiasm about the Knowledge Exchange if he expected people to embrace the extra work that such an information-sharing system would require. "At this point, this was 'Ralph Jordan's Program,'" Jordan recalls. "And, well, it wasn't going to be successful as Ralph Jordan's Program. So I had to extend the ownership. And you do that by bringing people in early on and keeping them in."

All told, about 22 people were involved in various curves of the loop, although the core team was limited to about 10.

Resistance and Persistence

Ulysses S. Grant had Robert E. Lee, Bullwinkle had Boris, and the Knowledge Exchange team had Don Casey. Casey, the president of Wang and then acting president of the software division, didn't like the idea of building an intranet with unproven technology.

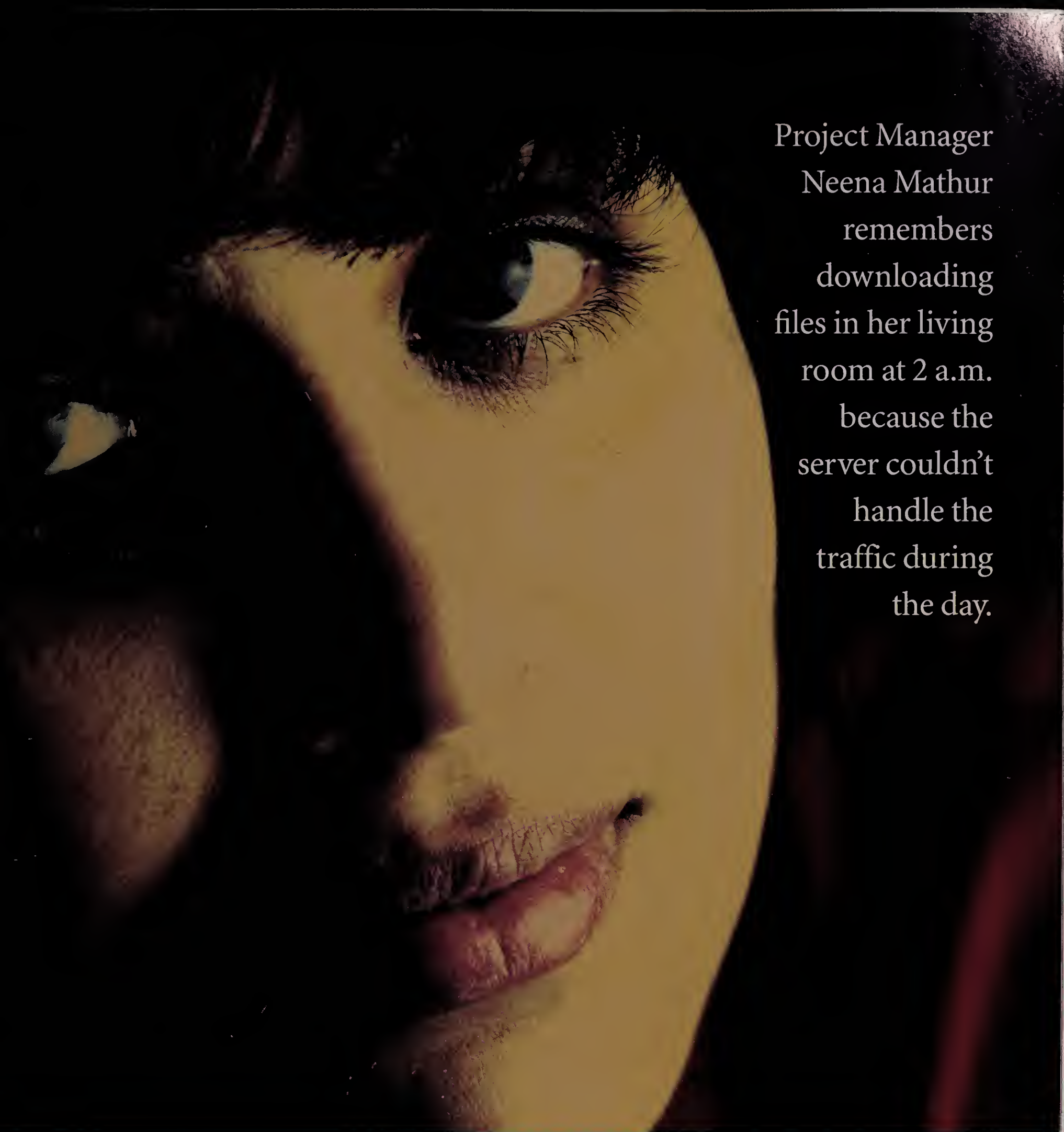
Knowledge Is Power

Wang Software's intranet, called the Wang Knowledge Exchange, is the answer to a salesperson's prayer. It includes basic information about the workflow products that Wang sells; such details as contacts and corporate strategies of customers on the radar screen; case studies of current Wang customers; and troubleshooting tips for software implementations.

The intranet also has discussion groups, which help desk staff scan for information that should be preserved for the sales reps. In addition, the help desk documents phone transactions with sales reps and feeds solutions back into the Knowledge Exchange, where other salespeople can benefit from them. And reps can use the site's search engine to pull up Microsoft Corp. PowerPoint presentations, documents or spreadsheets on a given keyword.

The publishing process—from the time a file leaves an author's desktop to the time it appears on the intranet—takes less than 30 minutes. Information is always current: An author is e-mailed at the half-life of a document, and both the author and his or her manager are e-mailed shortly before the document reaches its expiration date.

Wang employees and partners need passwords and user IDs to get into the site, which they can browse using Microsoft's Internet Explorer. *—C.Dahle*

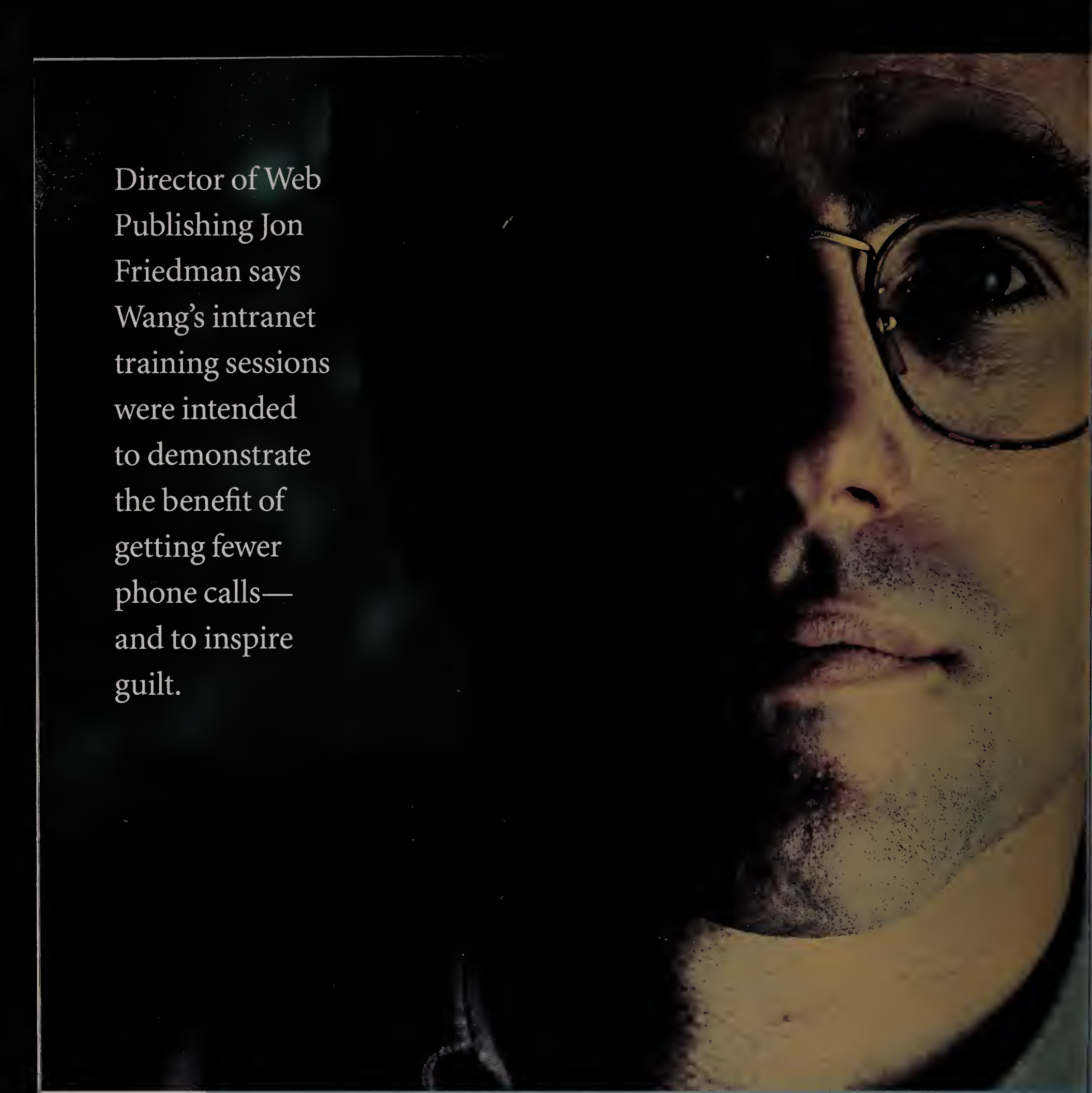


Project Manager Neena Mathur remembers downloading files in her living room at 2 a.m. because the server couldn't handle the traffic during the day.

But having held senior management positions at Lotus Development Corp. and IBM Corp., he *did* like Lotus's successful Notes work-management tool, whose next generation promised Web connectivity. While some of Wang Software's bid proposal work had been tracked on Notes, the team had reservations about using it for the backbone of the Knowledge Exchange. For one thing, Notes required massive training. And for another, the team couldn't be sure that external partners would be compatible, or even want to be compatible, given the Notes price tag.

Furthermore, Notes couldn't give the Knowledge Exchange what it really needed: the ability to do full-text searches of all sales documents. Then in April the team found a new product with that capability. Jordan, Mathur and IS Consultant Manager Denis Nothern were visiting a Database World Show in Boston when they came upon Illustra Information Technologies Inc.'s Illustra Server and Web Data-

Director of Web Publishing Jon Friedman says Wang's intranet training sessions were intended to demonstrate the benefit of getting fewer phone calls—and to inspire guilt.



Blade Module (since acquired by Informix Software Inc.). The object-oriented database allows users to conduct full-text searches on documents, unlike Notes, which only searches document abstracts.

In July of that year, days after IBM acquired Lotus, the team presented its proposal to Casey. Casey's response was incredulous: "Are you telling me that IBM just made a $3 billion mistake?"

Twice he sent the project team back with the same directive: You haven't looked hard enough at Notes.

Jordan admits that this part of the process was particularly grueling. But instead of discouraging the team, he says, the setback served as a coxswain that forced team members to start rowing in sync. "Going through that experience together was a team building exercise because we identified a superordinate goal," Jordan says. "It actually became one of the perks. By the time Don Casey said, 'OK, let's go,' he was ready to go. He understood in depth what he never would have understood had not that challenge been issued. Now guess who was part of the team?"

Once Casey was on board, the team faced a potentially nasty squabble with corporate IS. Historically, the software division had received little attention from that department. And that was not surprising, considering the software unit's relatively small size and profitabil-

ity. While the unit had an impressive annual growth rate, its $21.2 million in sales in the 1995 fiscal year was dwarfed in Wang's overall $950 million revenues for that year.

"The unique needs of the software business were not being met," says Jordan. "But it's a very different business from what IS was chartered to support."

Tensions were inevitable once the business unit took the initiative to address those technological shortcomings itself. As the specifications for the intranet project became clear, so did the fact that IS did not have the skills to handle the database development. Nor was it equipped to support a Web server that was running 24 hours, seven days a week.

So Jordan sent out requests for proposals (RFPs) to internal IS and to two other vendors. It was a tough decision. First, it was not politically popular to propose spending money outside the company on IS when it might be less expensive to do the job in-house. Second, as Mathur says, "It was a question of loyalty. And that was hard. That was the hardest part for me as a project manager—to keep spirits up on the team when it felt like we were being disloyal to our fellow employees."

Nothern, the only IS representative on the team, was put in a particularly difficult position. "At the same time that I was asked to draw up the RFP, I was also asked by corporate to respond to it," says Nothern. "It was like having each foot in a different canoe. They were sliding away from each other and I was getting torn apart. I was trying to be objective and responsive to Wang Software division and at the same time reflect the views of corporate IS."

Eventually, the group decided to outsource database development and server maintenance but leave corporate IS in charge of overseeing that outsourcing. That decision put an end to Nothern's schizophrenia and kicked off contract negotiations with BBN Corp. for Internet service and with Informix Software for help on the database development. The price tag for the initial development phase, Jordan says, was $582,000.

Rollout and Revision

THE PROJECT TEAM had hoped that once the contract was signed the worst would be over. As it turned out, the development process was riddled with snafus. Because the technical demands were on the outer edge of the new database's capabilities, parts of the project were delayed until Illustra supplied necessary software patches to add features and fix bugs. Also, the team had agreed on a file protocol that fused each document with a label containing information about when it was created, who created it and when it would expire. Coupling the document with its tag as one element in the database meant less hassle in the information retrieval process, but it also meant that both Wang and BBN had to write custom code to handle those documents. "It often felt like the track was being laid as the train was moving along," Nothern says. "It took six months longer than we expected to get things running smoothly."

Unfortunately, six months was more time than they had. In fact, six weeks was more time than they had. The contract with Informix was signed Dec. 22, and the team had committed to unveiling the Wang Knowledge Exchange at the annual sales meeting on Jan. 15. Meeting that deadline was critical if the system were to get the ballyhooed introduction for which they hoped.

Tech Specs

Using a Microsoft Corp. Visual Basic interface designed by the Knowledge Exchange team, authors can create a digital file label that includes the content owner's name, the date the file was created and when the information in it expires. That tag is embedded and sent with the file in its native format (whether it's a spreadsheet, a word processing document or a slide presentation) to a Novell Inc. NetWare server (Wang is converting to Microsoft's Windows NT) behind the firewall. There is virtually no HTML coding in the Knowledge Exchange. The file tag is then embedded in the file, and the whole thing is sent as an object using FTP to Internet service provider BBN Corp. BBN downloads the information to a Sun Microsystems Inc. Sparcstation running Sun Unix operating system software on an Informix Software Inc. Illustra Server and Web DataBlade Module.

As it turned out, the deadline was met, although with a prototype that was workable, and just that. The intranet went up with 200 documents online and more than 300 user IDs and passwords.

Over the next four months, team members collected e-mail from sales reps offering advice on how to improve the intranet. Jordan put a premium on responsiveness—each suggestion got a reply and a follow-up call from a team member exploring the problem further. "You can take a negative experience that is a problem and turn it into a positive experience if you fix it quickly and you communicate," Jordan says.

Meanwhile, the team was working

Wang's Knowledge Exchange changed more than how the reps sell software. It changed the way the entire software unit produces and distributes information.

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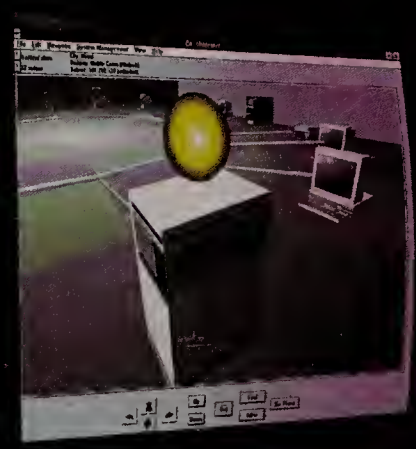

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Soon after the Knowledge Exchange debuted, Wang ensured the participation of its sales reps by killing all other information sources—newsletters, faxes and the like were gone.

around the clock to nurse the fledgling system along. Mathur remembers downloading files to the database while sitting in her living room at 2 a.m. because the server couldn't handle that additional traffic during the day.

One problem the team didn't have was security. The reason: There is none. Wang's servers sit behind a firewall, but once the encrypted data is sent from Wang to BBN's servers, it's out in the open. Of course, no one without a password and user ID can access the pages, so the team chose to live with some risk rather than spend time and money on additional security.

"What's the point of spending another $15 gazillion on security when you have more to worry about from someone walking out of a customer meeting with notes on a legal pad?" asks Jim Harrison, the team member from engineering systems who developed the Microsoft Corp. Visual Basic author interface. "We still have security concerns, but the paranoia has subsided. We don't need to protect peanuts with antitank missiles."

Culture Change

As the technical gurus on the team were putting the system together, the content managers were doing the equivalent of door-to-door sales. "We needed to spend as much time on internal selling as we did on systems design," Jordan says. "We did a lot of presentations to groups, a lot of one-on-one."

The persistence was necessary because the Web model for handling information was so different from Wang's standard procedure. Producing information was traditionally a one-time event at Wang. Product managers and other company personnel put data sheets up on the mainframe system and left them there. If people didn't understand documents, the popular sentiment held, it was their fault, not the author's.

The Knowledge Exchange would change all that by bringing a new level of accountability: It was designed to e-mail authors (and their managers) when the expiration dates on documents were approaching, and names were attached to everything. For some, such as those in the research development area, even the process of documenting their findings would be new. Jordan's team had to prove to people that the system would, in the end, make their lives better.

In addition to one-on-one pitches, a system of "punishments and rewards" was put in place. Sales reps who gave feedback were praised, as were authors who provided the most content. Contribution to the Knowledge Exchange was written into job descriptions. The group also ran two half-day author training sessions that taught them how to use the interface and emphasized the need for everyone's "required cooperation." "Part of it was trying to demonstrate the benefit of getting fewer phone calls," says Jon Friedman, director of Web publishing for Wang Software. "Part of it was trying to inspire guilt. We wanted the sessions to be convenient and voluntary, but we wanted to lean on them a bit, too."

Before long, even the usually skeptical sales reps were won over. Reps like Hausdorf can now assemble all the information they need for presentations and pitches in minutes, not weeks—and they don't have to be white-out artists to do it.

"I can be in a hotel in Dallas and download data sheets for a presentation for the next day," says Hausdorf. "It's like the information chain has been cut down to one link."

Not that Hausdorf has much choice. Soon after the Knowledge Exchange debuted, the company ensured sales' participation by killing all other information sources—newsletters, faxes and the like were gone.

Wang Software's intranet has become a ubiquitous tool for the business unit—even for senior executives who could certainly get information quickly over the phone. That's exactly what Jordan hoped for two years ago, but today it is only the beginning of what he envisions. Next, sales reps will become authors as well as users. That's critical if Wang Software's intranet is to involve more divisions and functions, says Randy J. Hinrichs, author of *Intranets: What's the Bottom Line?* (Sun Microsystems Press, 1997). "This is the beginning of the solution," Hinrichs says. "They are right on track in the first generation of intranet development. But they are not a third- or fourth-tier intranet that deals in high-volume transactions."

Not yet. But the software division is looking at customer asset management packages that could be integrated with the Knowledge Exchange to handle every aspect of a transaction—from pitching to sales to commission check—all using intranet and Internet technology.

Ultimately, Jordan says, he hopes the Knowledge Exchange will go beyond being ubiquitous to being downright taken for granted. "They'll have a dictionary, a thesaurus and their Wang Knowledge Exchange," Jordan says. "That's what I want to drive people to." WM

Associate Editor Cheryl Dahle can be reached at cdahle@cio.com.

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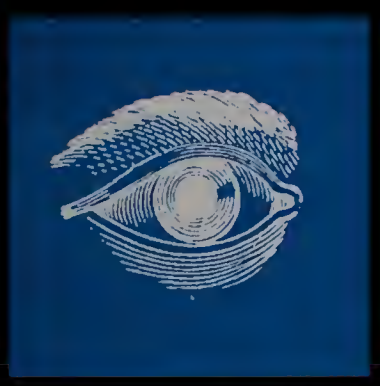

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Worried that their Web sites might become digital graffiti boards, companies are putting in place people and processes to manage content. BY CHRISTOPHER KOCH

MANAGING THE CONTENT of a large corporate World Wide Web site is like contending with the jumble of blips on an air traffic control radar screen: It's complex, crowded and very time sensitive.

Enter the gatekeepers, the air traffic controllers of site content management. These people—sometimes called information stewards, Web coordinators or Web editors—are responsible for seamlessly commingling the news, information and promotional messages of numerous, far-flung contributors while ensuring that their material is accurate, timely and legally irreproachable.

Gatekeepers' responsibilities are part editorial, part project management, part advocacy. They normally reside within the various organizational slices of the company—business units, product divisions, functional areas—and they understand both their constituencies' specific agendas and the demands of the Web. And while many—particularly those in marketing—work only with Internet sites, gatekeepers today are just as likely to focus on intranets, where the corporate soul is expressed in HTML. As companies struggle to organize internal content in a way that serves everyone—and provides fodder for the external Web—gatekeepers are becoming the essential links holding content delivery together.

"You need some consistency across all your Web sites in terms of providing a company message and navigational means," says Mary J. Cronin, professor of operations and strategic management at Boston College's Wallace E. Carroll School of Management. "But the process works best when the different departments have the independence to control their own content. Typically, there's one person [in each division] who's responsible for content, and the policy should be not to second-guess them as long as what they're doing fits with the overall editorial policy and navigational rules."

Millipore Corp. doesn't have much reason to second-guess Bertil Thulin, managing director for the company's Swedish subsidiary. Millipore, a maker of purification products for the microelectronics, biopharmaceutical and analytical laboratory markets, has apportioned pieces of its corporate Web site among its four product divisions and 31 foreign offices. Though Millipore has an intranet, the external site serves as a kind of hybrid—it's a public place where the company's units speak directly to customers and to one another.

Most of the foreign office pages are little more than contact information posted by Claude von Roesgen, Millipore's corporate webmaster. But Thulin wanted his pages to speak directly to his Swedish customers. "When you come into the corporate home page, it's always changing, but the local pages don't change much," he says. "I wanted our local page to be a living one, just like the home page."

Filtering Swedish content through the corporate Web team proved an unwieldy process, however. "Swedish is not an easy language, and so it usually didn't come out the way I wanted it to," says Thulin. Using the HTML knowledge he has gained cruising the Web in his spare time, Thulin now publishes directly to his slice of Millipore's corporate home page. He has added a few touches to give his pages a local feel: a Swedish user's club, a map showing how to get to Millipore's office in Sundbyberg, Sweden, and pictures and bios of himself and his staff.

As local constituencies like Thulin's develop around Millipore, coordination becomes an issue. Common standards for content, design and gatekeeper responsibility are handled centrally by the corporate marketing and communications group. A group of five "Web uploaders," headed by von Roesgen, is responsible for making sure Web content is being posted to the right areas.

THOUGH MILLIPORE is relatively small ($594 million in revenues in 1995), its reliance on decentralized gatekeepers and a small, centralized group of uploaders should make sense to any company managing numerous, dispersed contributors. At The Dow Chemical Co., for example, a cross-functional intranet networking team—composed of employees led by IS, public affairs, and research and development—must balance local independence against the need for consistency.

Dow's gatekeepers, called information stewards, receive guidance from the three leaders of another cross-functional team, who also act as diplomatic liaisons with corporate headquarters. Dave Yoo, product services manager in information systems services, has a background in IS, so he consults primarily on technical questions; Kanina Blanchard, communication manager for the Internet and intranet, assists with marketing and

Get With the Program

Two schools of tool vendors vie to make your content manageable

The definition of Web content is blurring as sites focus more on doing things than saying things. "In the future, half of the content we see on a Web site is going to be programming rather than text," says Sue Aldrich, senior consultant and editor at the Patricia Seybold Group in Boston.

Trouble is, the text gurus and the programmers each have their own ways of doing things, and the process confluence is stirring up loyalist fervor on both sides. IT departments have highly developed software development processes: For them, software configuration management vendors have created sophisticated tools for tracking who has access to what, who did what, when they did it and why. Meanwhile, document management vendors have tools that do the same thing—with an emphasis on text, of course. Both camps argue compellingly that you should make their Web-authoring process your Web-authoring process.

The software folks focus on the iterative nature of Web pages. "People from the publishing world are used to throwing away their old drafts and hanging onto the final version," says Christopher Seiwald, president of Perforce Software Inc., a maker of software configuration management tools. "You don't throw out Web sites; you gradually replace and update pieces of them—just like software." Furthermore, all those changes and revisions are wrapped in a cloak of software definitions—Java, HTML, etc.—with which software development tools are quite comfortable. "Everyone who touches [Web content] is going to have to learn to work like a programmer," Seiwald predicts.

Yet few companies come to this content management conundrum without some baggage. Unwieldy maintenance manuals and other arcane documents have been making their way from filing cabinets into document management tools for years now, and the systems contain some of the same process components—access control, versioning, archiving, etc.—that power software configuration management tools. Most document management tool vendors are busy putting browser pipes into their products so that Web authors will be able to get at all those organized

One of the challenges for gatekeepers is to broaden the definition of content and with it the definition of a Web author.

communications issues; and Julie Oman, manager of commercial and technical information services, helps with content organization. Together, they advise the stewards—who number 35 and counting—on setting up their sites and determining their business value; they also explain what impact the sites will have on Dow's intricate computer network.

Yoo is perfectly clear about the trio's role in content delivery: The buck stops at the stewards' doors. "We don't have any hard and fast rules about what content should be or how often it should be revised," he says. "Instead we have a policy that says to each steward, 'You are accountable for maintaining the accuracy and relevancy of your content.'"

The Dow stewards are comfortable with that kind of accountability, says Yoo. Most are experienced middle management types with the respect of their peers and a knack for keeping up with initiatives going on around them. The importance of such knowledge became apparent recently when a staffer in Dow's Treasury function at its Midland, Mich., headquarters began working on a way to post the latest global currency prices and information on the intranet. Within the same month, Treasury's European and Asian offices came up with the same idea independently and began their own projects. Treasury's steward learned of this potential threefold duplication of effort and negotiated a settlement whereby the Midland office did the work with input from the other two.

The stewards also prevent the intranet from becoming a leaky pipe by vetting sensitive research material before it is posted. "We have a rigorous process for getting at [R&D] information," says Oman, "but with the intranet, we've found that people are starting to post some of that information up to their sites. Their intentions are good—they want to share their work with other researchers within Dow. But what they don't realize is that part-timers or students could gain access to that information and walk out the door with it."

Then there are copyright issues: "We have people who are innocently downloading cartoons, modifying them and putting them up on their sites," says Oman. "That's a copyright violation, and it could land the company in court." To solve the problem, stewards are now accountable for any Dilbert or Doonesbury mutations that wind up on their portions of the intranet.

SOMETIMES, GATEKEEPERS have difficulty deciding how they should deliver content through their Web sites. Xerox Corp.'s corporate communications department split over the issue, says Cynthia Casselman, manager of strategic communications and intranet development partner. "Some saw our site being a broadcast medium, and others saw it becoming more of a forum for collaboration and communication," she says. "It was hard to reach consensus, so we ended up doing both."

Casselman's communications group holds a daily editorial meeting to decide which news items and press releases will be broadcast to the company. "That has been our traditional role, so it came pretty easily," she says. What has come harder is the collaborative part. Casselman says she hopes to use the site to bring others into the communications process by hosting forums about, for example, the quality of Xerox's internal communications and what can be done to improve them. In that way, the site becomes not just a news delivery mechanism but also a means for the department to let others know what it does and how it can help them.

But it's hard to be heard when new sites are constantly being fielded by groups as small as 15-person temporary teams and as large as teams of thousands of product developers. Xerox tries to build a sense of collaboration among the numerous intranet contributors metaphorically—the

pages. For companies whose intranets focus primarily on delivering those complex documents around the company, document management tools will probably do the job just fine.

Some truly ambitious Webheads, such as those in The Working Group on WWW Distributed Authoring and Versioning, believe that authoring steps should be embedded directly into HTTP. Currently, HTTP trashes old versions of updated pages. If two authors are working on the same page from the road, for example, each could cancel out the other's updates—the last-laugh method of Web authoring. By incorporating the best ideas of software development tools and document management tools into the Web, authors could edit their pages without nuking anyone else's work inadvertently.

As the Web is used more and more for collaboration, "the authors and editors and people responsible for the content won't see each other during the process," says Jim Whitehead, a University of California at Irvine graduate student who is the group's chairman. "Therefore it becomes extremely important to know who's seen [the content], who's allowed to see it, what point it's at in the development process and who has approved it." *–C. Koch*

Toolbox

Software configuration management tools

StarBase Corp.'s StarTeam (*www.starbasecorp.com*), MKS Inc.'s MKS Source Integrity (*www.mks.com*) and Perforce Software Inc.'s Webkeeper (*www.perforce.com*) are collaborative environments that focus on delivering "defect-proof" content. The software can be arcane, especially for nonprogrammers, but the tools shine when content is complex, iterative and highly distributed.

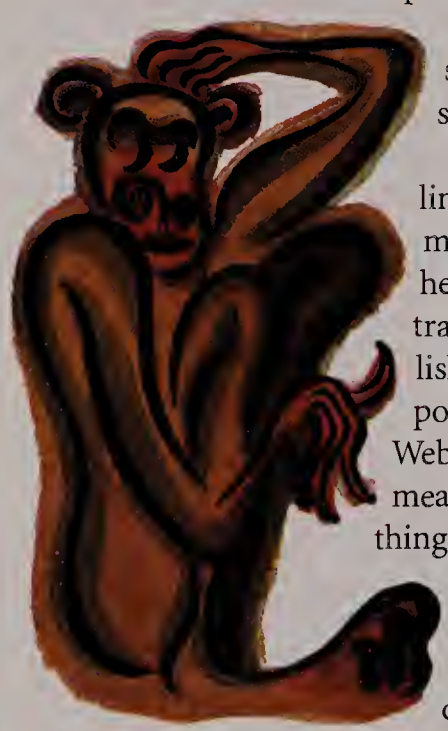
Document management tools

Documentum Inc.'s RightSite (*www.documentum.com*)—an extension of the Documentum Enterprise Document Management System—and Interleaf Inc.'s Intellecte (*www.ileaf.com*) have extensive collaboration, archiving and workflow capabilities. Though most document management tools predate the Web, vendors have seen the handwriting on the wall and are making them more Web-friendly by improving distributed authoring and publishing capabilities.

Finally, a new category of content management tools created with the Web in mind is emerging. Ikonic Interactive Inc.'s Ringmaster (*www.ringmaster.com*), for example, focuses exclusively on the editorial and approval process for Web content and coordination among many distributed authors. And Lotus Development Corp. (*www.lotus.com*) has incorporated distributed authoring capabilities into its Domino Action application, which runs on the company's Domino server. The tool sets up editing and approval processes, audit trails and sign-offs, and controls access to documents and content-creation privileges.

Source: Sue Aldrich, senior consultant and editor, Patricia Seybold Group.

background of its intranet home page is a whiteboard—and physically—there's a spot on the site where gatekeepers can submit links that they think others in the company could use. Xerox also has a central committee, called the Office of the Intranet, that evaluates those links for possible permanent inclusion on the site. "We've accepted almost all of [the submissions] so far," says Casselman.



Calling HTML links "content" may seem like heresy from a traditional publishing standpoint. But on the Web, content means many things. One of the challenges for gatekeepers is to broaden the definition of content and with it the definition of a Web author.

For example, Jonathan Warren, a mechanical designer for Millipore's North American Bioprocess Engineered Products Division, delivers "content" to customers over the Web that contains not a word of text. Nor is Warren remotely involved in publishing or communication; his day job at Millipore is designing elaborate filtration systems for pharmaceutical and biotechnology customers.

Warren's interest in the Web began when he unwrapped the free authoring software that came with his new Silicon Graphics workstation. After fiddling with it awhile he realized that the Web could solve an old problem: Customers had trouble visualizing his complex system designs from the mechanical drawings he gave them. Rendering the drawings in 3-D solved the visual problem but created a delivery problem. "We have some competitors who actually bring $50,000 workstations to customer sites and train them to use the design programs so they can view the different iterations of the machines," he says.

What customers really want, Warren says, is the pictures, not the systems and software baggage that come with them. So, working with von Roesgen, he created a password-protected area within Millipore's external site where customers can access the latest designs with a PC, browser and 28.8Kbps modem. "[The site] will become more a part of the design process and the upfront selling as well," says Warren.

Warren is proof that the Web authoring process is, at its core, self-driven. His allegiance to his product and his customers lends focus and quality to his contributions, and no one has to worry whether he'll let the new design-download area wither.

But Warren isn't merely an author; he's also a gatekeeper who must consider how his content plays across the rest of the company. He is now working with Millipore's European design division, based in France, to begin sharing designs and doing collaborative work over the Web.

This is the essence of the gatekeeper's role: providing an organizational context for an author's content. Warren says he has no doubt that the Web will allow the two design departments at Millipore to become more of a single, coordinated unit: "This [Web] stuff is easy," he says, "so it will happen." WM

FINDING IT ONLINE

The Dow Chemical Corp.
www.dow.com/

Millipore Corp.
www.millipore.com/

Perforce Software Inc.
www.perforce.com/

The Working Group on WWW Distributed Authoring and Versioning
www.ics.uci.edu/~ejw/authoring/

Xerox Corp.
www.xerox.com/

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limited engagements

Content on the Web can live practically forever, but some of the biggest attractions are cyberevents that have a beginning and an end By Anne Stuart

RICK SMOLAN, the mind behind the famous *A Day in the Life* photo book series, racked up some pretty impressive numbers when he moved the concept onto the World Wide Web. His ambitious $5 million project, *24 Hours in Cyberspace*, involved 150 documentary photographers, who sent in more than 200,000 images from 43 countries; 25 radio crews, which recorded hundreds of audio clips; 300 "mission control" staffers, who pieced the contributions into a multimedia snapshot of life online; and 43,000 people who visited the site and signed a digital guestbook.

All using one large database. One.

In hindsight, Smolan says using a single database to hold all the incoming information was a big mistake because it created a bottleneck, slowing the Web-bound torrent of content to a trickle. "We were simply drowning in stories and images from people all over the world," recalls Smolan, a photojournalist and founder of the multimedia publishing company Against

PHOTOGRAPH BY JOHN SOARES
PHOTOILLUSTRATION BY ERIC YANG

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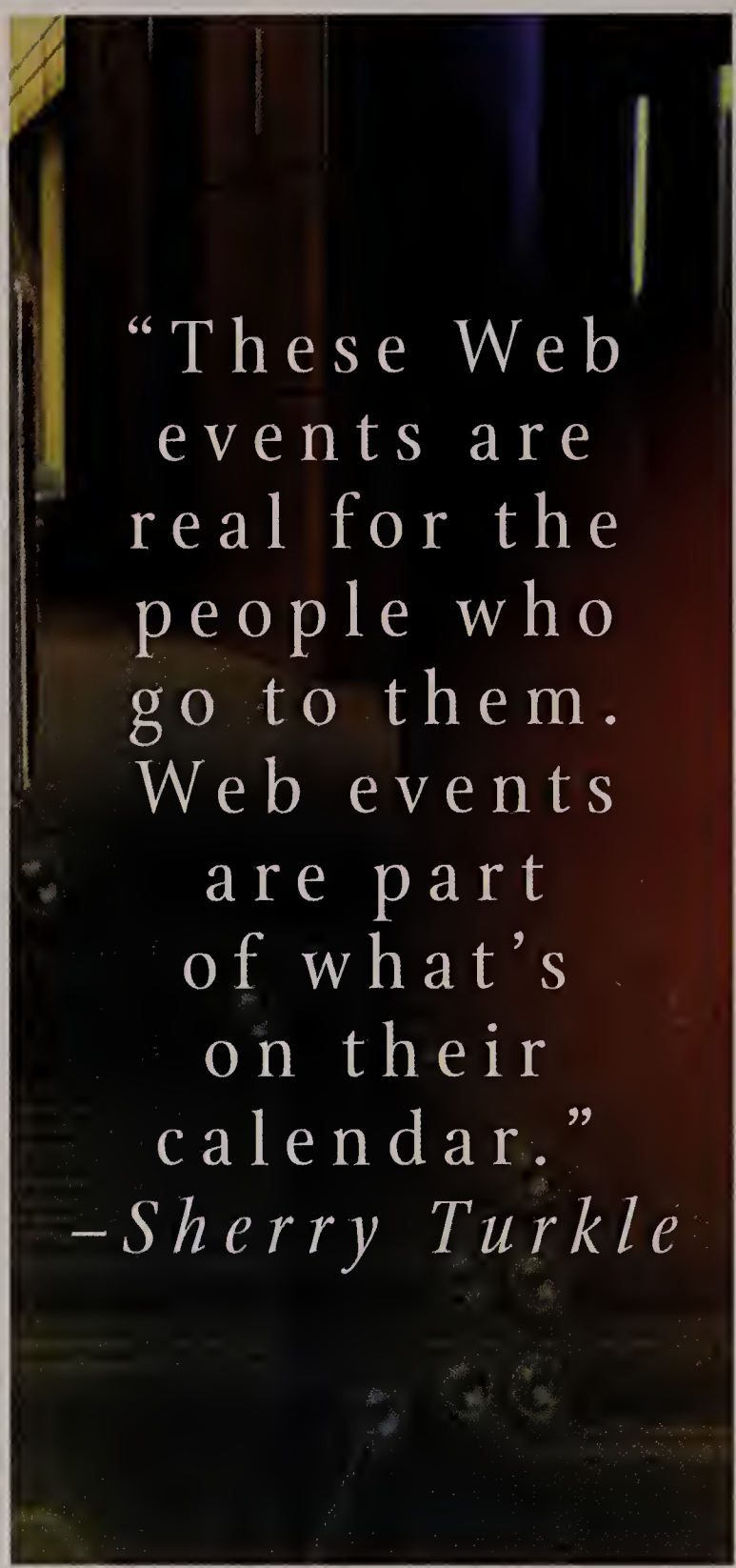
A LIFE OF THEIR OWN:
François Goisseaux's cyberevents cost much less than the real thing.



All Odds Productions. "Everything from the West Coast of the United States didn't get onto the Web until after midnight because we were still dealing with stuff that had come in from Europe five hours earlier."

The *24 Hours* team did create 60 online photo essays that day, Feb. 8, 1996, and later expanded the global collage into a permanent Web site as well as such potentially revenue-producing spinoffs as a coffee table book and CD-ROM. And Smolan is now looking ahead to other traditional photo book projects as well as his next proposed online extravaganza: documenting the dawn of the millennium, presumably with multiple databases.

By that time, perhaps, there will be some solid models for conducting—and profiting from—a cyberevent. At the moment, though, the world of virtual events is as uncharted as the Web itself, with early adopters inventing the format and the rules as they go. Even the definition of virtual events remains in flux. Bottom-line criteria: they're online; they're interactive; and, to distinguish them from ongoing activities such as discussion forums and online marketplaces, they typically have official beginnings and endings, even if the site stays up beyond the designated closing date.

Otherwise, Web events split into two general categories. In the first are online components of major real-world happenings, such as the Olympics, the Boston Marathon or the Democratic National Convention. These complementary sites have also been used to broadcast speeches, debates and shows, such as the performances that fans of The Cure, R.E.M. and the Crash Test Dummies heard last fall on LiveConcerts.com.

Increasingly, though, these events are becoming exclusively virtual—that is, they have no physical counterpart. Some, like the InterAct '96 virtual trade show and the National Information Infrastructure Award selection process, run for a few days or weeks. Others—including concerts, talk shows, auctions, news conferences and product launches—fit into time slots of an hour or so, just as TV and radio programs do. Examples of the latter include newsmaker chat sessions and auctions on *The Boston Globe*'s Web site; Sybase Inc.'s splashy online launch of its System 11 product line via Progressive Networks Inc.'s RealAudio; and *Real Time*, the video talk show that Digex Inc.'s ISP-TV spinoff began cybercasting live on Monday nights in October.

Some Web events blend, defy or straddle the two categories. The *24 Hours* project, for instance, was produced and experienced on the Web, but the photo essays documented the "outside" world looking back into cyberspace. Such murkiness supports sociologist Sherry Turkle's argument that any division of real and virtual experiences is artificial, "a silly kind of binary thinking."

"For too long, people have said, 'There's the virtual and then there's the real. Both of them are part of the construction of the new sense of the real,'" says Turkle, who explores those shifting boundaries in her book *Life on the Screen: Identity in the Age of the Internet* (Simon & Schuster, 1995). "These Web events are real for the people who go to them. Web events are part of what's on their calendar."

Turkle, a clinical psychologist and professor of the sociology of science at MIT, notes that people already relate to one another in multiple environments, meeting, for instance, by telephone as well as in person. Neither experience is more "real" than the other: Most peo-

Event Planners' Guide

Strategies for producing a virtual event:

CONSIDER THE AUDIENCE. "Think it through," recommends David Larkin, president of Trade Show News Network. "Are your customers even *on* the Internet? And what is it that your customers need?"

www.web-master.com/

ple move between them effortlessly, viewing them as complementary rather than as mutually exclusive. Similarly, she says, "one of the ways people get together is in a big [face-to-face] conference, and one way is online." The next step is "helping people live seamlessly in these two realms."

For now, though, event creators seem more concerned with figuring out—and helping others understand—how cyberevents both mimic and differ from physical ones. Obviously, virtual events make geography irrelevant. And except for scheduled openings, closings and live performances, time also becomes less important. "In a virtual event, there are no show hours," says David Larkin, president of the Trade Show News Network, a clearinghouse and marketing concern for information on online and offline trade shows. "And, of course, you don't have to travel and spend the money or the time. You don't have to walk the exhibit floor or eat bad convention food." Larkin estimates that about a dozen trade shows were held on the Net last year and says he expects that number to multiply rapidly.

Those cost savings are experienced by producers as well as attendees. François Gossieaux, former marketing director for Stratus Computer Inc., says that staging InterAct '96 on the Web cost one-third to one-sixth as much as pulling together an event of similar magnitude in New York, San Jose or another of the high-tech industry's favorite venues. "You don't have to rent a hall, buy food, pay for air travel," says Gossieaux, who left Stratus last fall to found Power1 InterActive Inc., which helps clients launch virtual events.

And while InterAct '96 featured such big-name keynoters as former *InfoWorld* Editor in Chief Stewart Alsop, Sun Microsystems Inc. Chief Technology Officer Eric Schmidt and Electronic Frontier Foundation Chairwoman Esther Dyson, most spoke for free or close to it because they didn't have to travel. "People could do it from home, from their offices, from the road," Gossieaux says. Some actually logged in between speaking engagements at face-to-face conferences.

Even technology support expenses don't tip the balance. "You need other resources than you would for a physical event—webmasters, for instance—but you don't need all those logistical people," says Gossieaux, who pulled off the three-day show with a technical team based in five states. "I didn't have to have a central command center. I didn't have to have movers. I didn't have to have people setting up. The vendors just designed their booths and e-mailed them to me, and when the show was over, I e-mailed them back."

Unlike traditional shows, which fade into history when they end, virtual event sites can remain online indefinitely, eking out promotional value long after the live activities cease. "A month after the fact, we still had 6,000 hits a day," Gossieaux notes.

On the downside, virtual events typically don't prompt intensive, lengthy or focused involvement. "I can't see anybody sitting down and spending three days at a virtual trade show," Larkin says. Even featured speakers or performers may not give the event their undivided attention. Doug Schuler, author of *New Community Networks: Wired for Change* (Addison-Wesley, 1996) and former chairman of and now senior program associate at Computer Professionals for Social Responsibility, recalls that

KNOW THE MEDIUM. Avoid passive television-style events. "Television is about observing things," such as concerts or sporting events, says Craig Barberich, president and CEO of BlueDot Software Inc. "Look to content that's participation-based to succeed on the Internet."

MAKE THE VIRTUAL RESEMBLE THE PHYSICAL. Even if they're unfamiliar with the format, visitors should readily recognize the basic environment. The InterAct '96 trade show included a registration desk, an exhibit hall and meeting rooms. For the National Information Infrastructure Awards, Web site designer FCI Communications Inc. created private work-spaces for each judge.

EXPLOIT THE TECHNOLOGY. Work with the Web, not against it. Don't organize the site in a linear, static fashion, like a paper program or catalog. Use and update links, buttons, frames and other features. Think about new ways to present, market and run the event.

PICK THE RIGHT PARTNERS. Make sure vendors have the background, capability and expertise to carry the event.

CONSTANTLY REINVENT. Participants expect rapid, constant change. François Gossieaux, founder and president of Power1 InterActive Inc., recommends putting regular updates on the home page so arrivals quickly "get a sense of what's happening live, right here, right now."

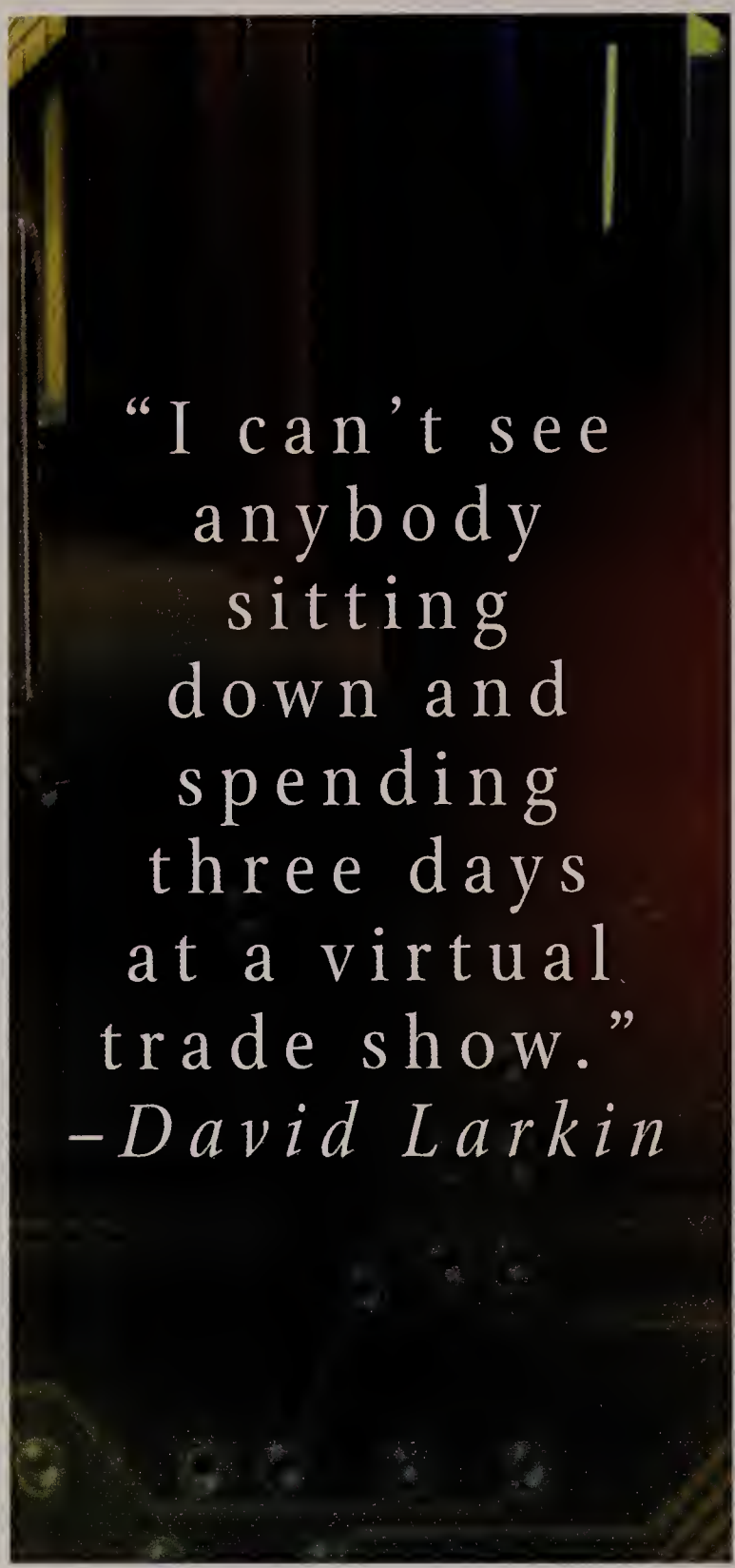
RESPOND QUICKLY. Visitors expect high interaction and near real-time response, particularly for something billed as a live event.

STAY ON SCHEDULE. Virtual event-goers have little patience with delays. "People won't hang around their computers for 15 minutes waiting for a late speaker to show up," Gossieaux says.

KEEP IT SIMPLE. "Some of the [applications] are wonderful, but they should be used as part of the process, not just as gee-whiz stuff," says photojournalist Rick Smolan of Against All Odds Productions. In certain venues, he says, chat rooms, unedited video and videoconferencing can be downright boring.

KEEP IT FLEXIBLE. Remember that the technology never stops evolving. "Nobody has the video standard locked in stone," says Doug Mohney, manager of Digex Inc.'s ISP-TV. "When better technology comes along, you want to be able to use that."

–A. Stuart



while being interviewed in a live online chat session, he "talked" publicly with the audience, privately to the moderator and personally to the person sitting with him at his home computer—all at the same time.

And, of course, virtual attendees are perpetually just a click away from the other wonders of the Internet. "It's got a much higher turnover rate than any other medium, including television," says Scott Blum, president of IMusic Inc., a site featuring live concert broadcasts and online interviews with musical stars. "You have a 10- to 15-second attention span."

THE SAME technology that enables virtual events threatens virtual events. Like Smolan, many who go live online are finding that there's no such thing as too much redundancy or technology that's *too* good.

Producers of scheduled, highly promoted virtual events remain wary that, even with the most vigilant planning, any link in the carefully strung chain can fail at any time. "I will never overestimate technology's ability to frustrate me at a high-pressure moment," Doug Mohney, manager of Digex's ISP-TV, notes ruefully. "The T1 line can go down. The router can go down. This is not turnkey. It's not for the faint of heart."

Interact '96, which involved 150 presenters and seminars, more than a dozen corporate sponsors and about 40,000 attendees, experienced its share of headaches, mostly of the annoying, fix-it-on-the-spot variety. Servers occasionally overloaded. Mandatory registration was abandoned after the first day because of a balky interface. Events ran across six workstations, and attendees had to re-enter passwords every time they bounced from one workstation to another. Despite the assumption that people would want to talk privately, hardly anybody used the networking and one-on-one chat systems. Netscape 3.0 wasn't available until a few weeks after the show. And participants had to download special software to experience the 3-D exhibit hall.

"You had to do a lot of work if you wanted to see it all," Gossieaux acknowledges. "We knew it was something that would appeal to innovators and early adopters, and that the people in the middle of the bell curve were going to be very upset about it. And that's what happened."

Another reason to be fearful: Live events represent a juicy challenge for virtual vandals, who can't resist the temptation to literally crash the party in front of a large audience. "This is the type of event they want to bring down so they can boast about it," says Avi Singh, director of product marketing for WebMaster Inc., an Internet and intranet software engineering and consulting company.

Last year, IMusic used WebMaster's ConferenceRoom conferencing software to conduct an hour-long live interview with members of the popular rock band The Smashing Pumpkins. Minutes after the event began, "hacker terrorists tried to flood the server to shut it down," recalls Singh.

WebMaster was able to keep the interview running, using applications that block persistent attempts at entry as well as an online team of security guards that monitored the system throughout the event. ("Sort of a volunteer peace-keeping force," says Singh.)

Sometimes, producers can sabotage their own Web happenings simply by failing to use the medium as people expect it to be used. In promoting a site running as a complement to its *Frontline* documentary "Why America Hates the Press," for example, PBS announced that visitors would be able to "talk back" to top journalists interviewed for the program. However, "talking back" consisted of clicking on links to send e-mail messages to three of the eight interviewees (including the show's producer) with the promise that answers "will be posted at this spot in the coming days."

WHILE THEY APPRECIATE their cyberevents' promotional value, even producers of successful events aren't sure when, or whether, they'll repeat

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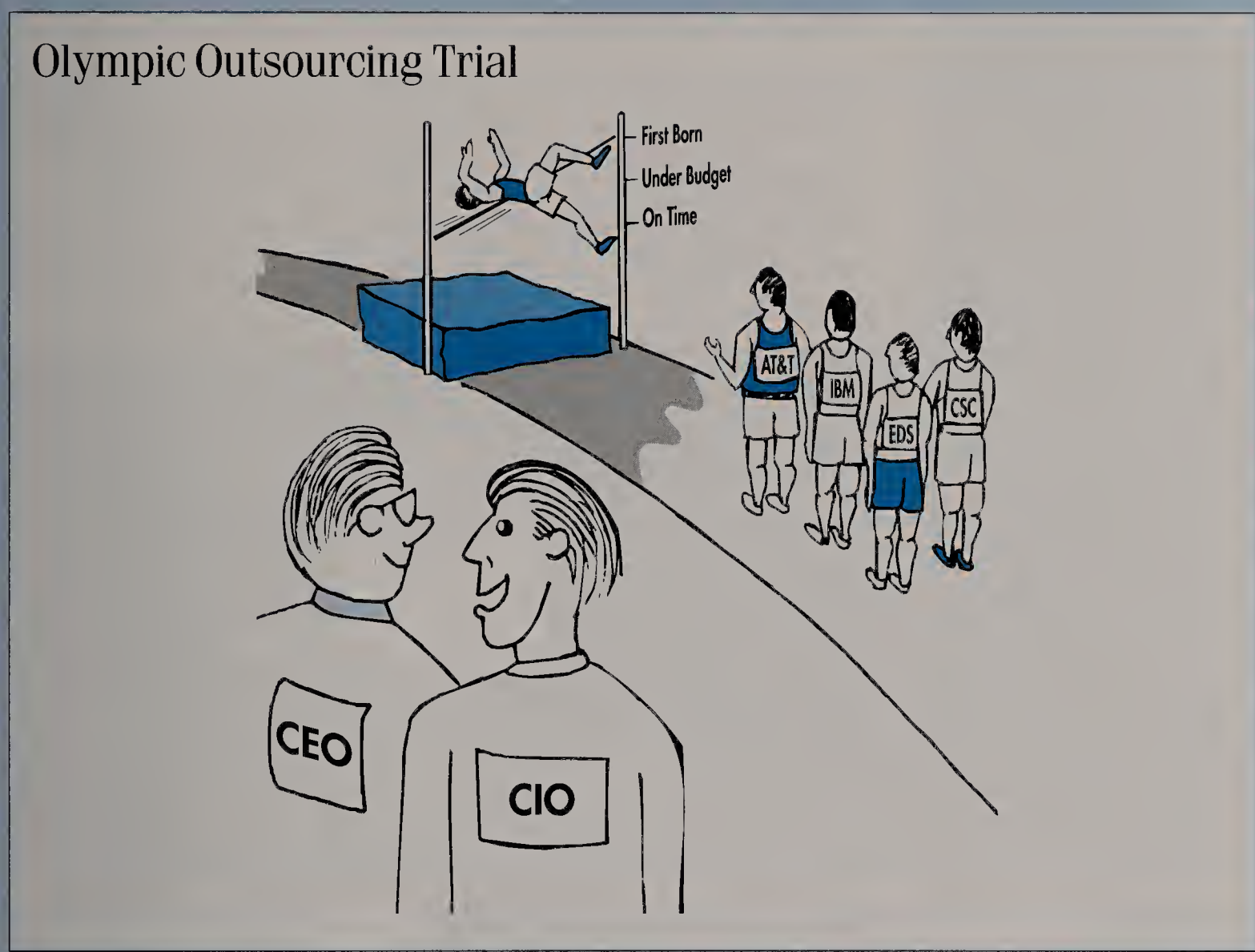

"Well, we don't expect any of them to clear the bar, we just want to see who'll jump the highest for us."

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them. Gossieaux says he expects to hold more virtual trade shows, but at press time he hadn't scheduled any. Even Smolan sounds relieved that the millennium project is still a few years down the road.

In October 1995, Sybase's System 11 products debuted online in a live, hour-long program featuring taped interviews with industry VIPs, customers and analysts, product demos and a question-and-answer session. The event went off flawlessly and generated plenty of publicity. But Sybase hasn't repeated it in successive launches, and Internet Strategy Manager Dan Lahl seems uncertain about the future of online product introductions at his company.

"Was it very effective?" asks Lahl. "Yes. Was it very successful? Yes. Is it our main marketing vehicle? Probably not. Should it be? Maybe."

Lahl says that from a marketing viewpoint it's a case of "been there, done that." "We now put all the stuff on the Web the day it's announced anyway," he adds. IMusic's Blum suggests that as the novelty wears off, online events may lose some value unless promoters keep topping themselves. "As this becomes more and more common," he says, "you have to do something more exciting."

Those lukewarm endorsements suggest that the concept of Web events—like the events themselves—may not be all *there*. "We've had a good response. I can't say it's been great," says Craig Barberich, president and CEO of BlueDot Software Inc., which makes programs for virtual events. "I think this area is just starting to take off in terms of people realizing what the opportunities are."

Among the haziest issues: financial benefits. "The model isn't there yet for people to make revenues," Barberich says. Instead, many producers settle for simply offsetting their costs with corporate sponsorships or advertising, or justify the expense as a cheaper alternative to a physical gathering.

Another barrier is the abiding conviction that it is better to meet and work with others in person. But as organizations go global, that preference may become a luxury. "We're constructing professional lives and personal lives with communities all over the world," Turkle points out. "We can't be in all of them all the time."

As a partial solution, Turkle recommends seeking creative ways to weave together virtual and physical events. For instance, a global conference based in Europe might put its keynote sessions online, then schedule smaller regional breakout sessions where participants can meet face to face.

Ultimately, getting people to accept online events may be as simple as making sure the new method meets the standards of the old—even if it doesn't duplicate them. As Barberich notes: "If you can bring people together and allow them to interact, then you've really created an event." No matter what form it takes. WM

Senior Editor Anne Stuart can be reached at astuart@cio.com.

My Toolbox Runneth Over

It takes more than some hand-me-down clothes and a stage in the barn to produce a cyberevent. The three-day virtual trade show InterAct '96 required a smorgasbord of products, including the following:

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National Information Infrastructure Awards
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Netscape Communications Corp.
www.netscape.com

Power1 Interactive Inc.
www.pwr1.com

Progressive Networks Inc.
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www.realaudio.com

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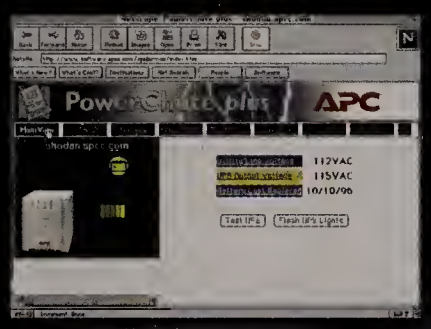

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CIO

THE FIFTH ANNUAL ENTERPRISE VALUE RETREAT AND AWARDS CEREMONY

Dear Executive:

On February 2-5, 1997, CIO Communications, Inc. and its Partners will host the Fifth Annual ***Enterprise Value Retreat*** at the Ritz-Carlton Laguna Niguel in Dana Point, California. This Retreat brings together over 200 corporate, government, and business school thought leaders to examine the dramatically changing structure in the IT environment of the late '90s.

The Retreat will be facilitated by F. Warren McFarlan, Senior Associate Dean, Director of External Relations and Ross Graham Walker Professor of Business Administration, Harvard Business School. He will lead participants through the increasingly difficult path of IT acquisitions, with innovative discussions on outsourcing, the CIO as in-house systems integrator, and risk and investment management.

You will participate in a case study with the CIO and CEO of a $2 billion power cable manufacturing corporation, led by Professor McFarlan. And, John J. Sviokla, Associate Professor of Business Administration, Harvard Business School, will lead a case study on the virtual value chain and the transition from marketplace to marketspace.

Participants are invited to attend the ***Enterprise Value Awards Ceremony and Dinner*** on Tuesday evening. Proudly underwritten by AT&T Solutions, the ceremony and dinner will honor recipients for their achievements in demonstrating enterprisewide Information Technology benefits.

In 1996, CIOs from companies such as American Express, United HealthCare, Walt Disney Pictures & Television, Honeywell, Safeway, ConAgra, Georgia Pacific, Cornell University, and The Dial Corporation were privy to the most innovative thinking in IT methodology, planning and management. Make this February your opportunity to join this prestigious group of IT leaders and learn the latest methods in finding and defining the value of Information Technology.

Visit our Web site at http://www.cio.com for more information. You may also complete and mail or fax the Enrollment Application on the back of the enclosed brochure to 508-879-7720 or call us at 800-355-0246.

Sincerely,

Joseph L. Levy
Group Publisher & President
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Lynda Rosenthal
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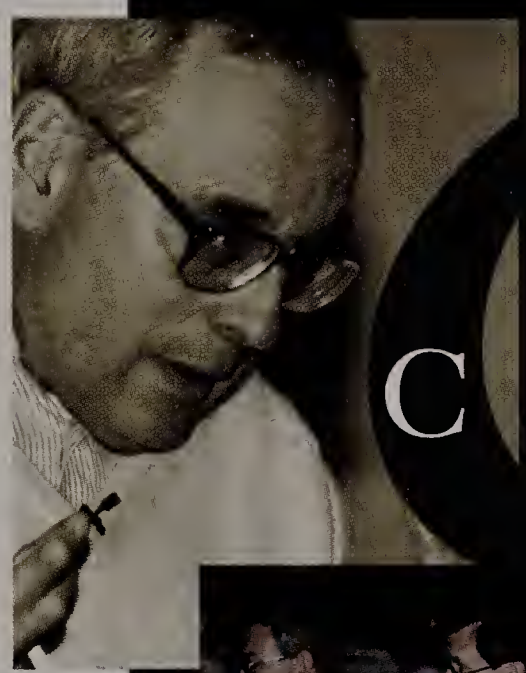

AWARDS CEREMONY

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Field Report

MASTER BUILDERS

Tools and techniques for building Web sites that do real work

By Mike Carifio

ILLUSTRATION BY SUSAN LEVAN

ASK NOT WHAT the World Wide Web can do for you; ask what it can do for your customers, your employees and your business partners. The answer is "quite a lot," as sites once populated almost exclusively by HTML files and GIF images are used increasingly to deliver applications. Some of those applications—such as those ubiquitous visit counters that all seem to start at 50,000—are mere adjuncts to the surfing experience. Others, however, enable such critical activities as electronic commerce and customer self-service. When you also take into account the compressed time frames and reduced costs associated with creating such applications, the argument for doing so becomes pretty compelling.

Two years ago, Web developers' options were limited. A Web application was a common gateway interface (CGI) script that generated HTML content when browsed. The user sometimes sent additional information, for example, in a POST or GET request from an HTML form. Now, although CGI remains the workhorse of the Web, webmasters can choose how a script is invoked (Netscape Server API, Internet Server API, Open Market Inc.'s FastCGI), where it's executed (on the client or on the server), how the browser is authenticated and how data is protected in transit.

Even with all those choices, the most important decision remains which applications to focus on first. Although you will want to create something specific to your business, you can start with two classic services that will enhance your site with just a little programming: mail distribution lists and search capabilities.

Often overlooked, mail distribution lists supply customers with announcements about your product or send employees updates on subjects like benefits information. They require a simple

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CGI script in Perl or your favorite scripting language, and they provide a real service to users who don't track your site. There are several shareware CGI scripts that connect HTML forms to mail-list utilities such as majordomo, procmail or hypermail. The added benefit is that readers can delete their names from your list via the Web or e-mail. But be aware that all three tools have a decidedly Unix flavor that makes them difficult to adapt to Microsoft Corp.'s Internet Information Server.

Having a search capability becomes more important the bigger your site gets and the more you change it. Although you could write a searching script yourself, it's more cost-effective either to pull a package—such as Glimpse—off the Net or to purchase a commercial tool, such as Verity Inc.'s Topic family or Excite Inc.'s search engine, Excite. Even the granddaddy of Internet information retrieval, wide area information server (WAIS), remains a viable option, although fewer browsers are building in support for the WAIS protocol. Most commercial systems can index multiple document formats, not just text, and most have installation routines more sophisticated than tar, the Unix archive utility.

BUT MUCH OF YOUR development work will probably involve customized applications, and that means CGI. Fortunately, CGI proficiency is easily acquired: If you can write programs that read from standard input and write to standard output, and if you know the top 10 HTML tags, then consider yourself trained.

One reason for CGI's continued dominance is Perl, a free programming tool tailor-made for CGI because of its rich text manipulation capabilities. With Perl, you can rip through HTML form input and quickly generate HTML output. The language enjoys a near cult following, including its own Usenet newsgroup and user organization. Consult most of the CGI textbooks currently gracing bookstore shelves, and you'll find Perl referred to as the programming tool of choice.

Many common CGI programming tasks are automated by Perl libraries of varied complexity. While most of this code—including CGI.pm and cgi-lib.pl—is available free from the Net, it is unsupported, and the quality varies widely. While you'll need fluent Perl programmers to exploit the libraries fully, the investment is worth it: In many cases they save time and money. You won't get the same packaging and polish as with commercial products. But with the right staff and a little pluck, you won't need them.

For those who do need additional support, a cottage industry is growing up around simple CGI-based tools that allow you to do things like create forms and parse input without programming. The tools' chief virtues are easier installation and better documentation than their freeware counterparts offer, as well as a phone number to call when you're feeling clueless.

While free Perl libraries solve many of the easier CGI problems, they're not helpful when tackling database access, one of the stickiest—but most practical—Web applications. There are many tools to do the job, including database access packages in programming languages (such as Microsoft's Data Access Object, the

Cases in

AMP: So Many Products, So Little Time

SUPPOSE YOU HAD 400 catalogs listing tens of thousands of part numbers in multiple languages. And suppose you wanted not only to make that avalanche of data available to customers all over the world 24 hours a day but also to do so in such a way that the customers wouldn't get buried?

That was the problem facing AMP Inc., a supplier of electrical and electronic components and interconnection systems. AMP's initial impulse was to go the CD-ROM route, but that solution proved a little too static for a company where an average of 200 product numbers change daily. Then in October 1995, Jim Kessler, AMP's director of global electronic commerce, was asked to evaluate the project. His recommendation: Move it to the Web.

Kessler's chief concern was that customers be able to find the right products easily. "If you go into a Fortune 1000 company and ask them what product information they have in their databases, you'll find a description field in a product master record that is 40 to 60 bytes long," says Kessler. "That's not enough to allow a customer to select that product. What you really need are parameters. What we have done is reverse-engineered our paper catalog into parametrically searchable databases."

That means customers are able to search by requirements as well as by specific part numbers and product names. Someone buying an integrated circuit socket, for example, might begin by selecting "IC sockets," then specify that it be a plastic leaded chip carrier socket and then that it be a 68-position surface-mount version—iteratively constructing a SQL query against the

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Point...

company's Oracle7 database. AMP developed the application, which also creates side-by-side comparisons of up to five similar products, in conjunction with Saqqara Systems Inc. The technology—called Step Search—forms the basis of AMPemerce, AMP's consulting service for companies developing business applications for the Net.

One complication AMP encountered in developing its AMP Connect site was the sizable front-end processing load incurred with every new query to the database. (The database connects to a Netscape server via CGI written in Netscape Server API.) "We analyzed everything from the front end to the back end trying to understand what percentage each component was of the whole and what the bottlenecks were," says Kessler. "We found that it was the repetitive part of starting up Oracle—putting up and tearing down the connection." The solution was pulling some of that processing back into the server and leaving it running at all times. "We're taking roughly 42,000 hits a day to the catalog—about 6,000 customers—and we're not seeing any performance problems," Kessler says.

Kessler's darkest moment came while AMP was preparing to translate its product information—already in the database in English—into five languages for global consumption. (The catalog is now available in eight languages, including Chinese and Korean. The service is so customizable that a German-speaking customer who wants a product delivered in Spain can view Spanish product pages in German.) AMP put the project out to five bidders, and the bids that came back exceeded Kessler's entire budget. "I spent a couple of days with my door closed trying to figure out whether I should pull the last two hairs out of my head or rewrite my resume," says Kessler.

The exorbitant bids turned out to be the result of a miscommunication: The vendors didn't understand that the database would let them translate a word once and then reuse it over and over. "Whenever we put an option in the parameters—brass or tin or gold—it's the same no matter what product it's associated with," says Kessler. The final cost was one-fifteenth that of the original proposals.

The project, staffed by a project manager, two full-time programmers and some outside consultants, took nine months to complete. Kessler's group also tapped the company's data management organization for help laying out the database and its communications group for advice on performance problems. "We're talking about spring of '95, so we had to do it all ourselves," Kessler recalls. "People are much more fortunate today [in terms of commercial products], and if we had it to do over again, I'm sure we'd evaluate what's out there."

GE Medical Systems: The Right Way to Track Wrongs

QUALITY, FORMERLY number one on the management buzzword hit parade, has experienced a lowered profile of late. But the beat goes on at GE Medical Systems, which, along with the rest of General Electric Co., has embarked on a multiyear, multimillion-dollar crusade to reduce defects to three per one million units. It expects a Web-based data collection system to help.

The idea is to create a repository of records on each defect that quality experts can analyze back to root causes. Say an employee discovers that some magnets used in the company's MRI scanners are out of alignment. Using a PC running Netscape Navigator located on the factory floor, he or she would enter information about the deficient parts: batch number, vendor and nature and extent of the defect. Later, the worker would add how the problem was resolved and how much time and money were expended in the process. That data would be analyzed along with comparable information collected at another 20 or 30 plants worldwide.

Traditionally a mainframe shop, GE Medical Systems has focused more on client/server than on the Web. But the quality application was to be deployed in several countries, including France and Japan, and when the project was conceived in the fall of 1995, Sybase Inc.'s PowerBuilder, one development tool being considered, did not support multiple languages. Netscape Communications Corp.'s products, however, could.

In addition to the language requirement, the application had to run on Sun Microsystems Inc.'s Sparcservers running the Solaris operating system and Oracle Corp. software, and it had to allow for plant-by-plant customizability. "We have a generic description of all the properties of a defect, but at a particular plant some of those fields might not be relevant to that defect," says Technology Analyst Larry Walker.

GE Medical's Global Information Development group began by evaluating several public-domain tools, including OraPerl, which lets users make Perl language calls to an Oracle database. But Walker was concerned that "if we had problems we would have no support from the database vendor." So

sybtcl extension to Tool Command Language and so forth) and GUI-based tools that require varying amounts of programming (such as Bluestone Inc.'s Sapphire/Web). In addition, the Big Three database vendors—Oracle Corp., Sybase Inc. and Informix Software Inc.—are all integrating their products with the Web.

IT IS IMPORTANT to remember that application development is still application development—even when it takes place on the Web. Some good visual programming environments already exist, and vendors are scurrying to adopt their technologies for Internet and intranet deployment. For example, ParcPlace-Digitalk Inc., a longtime leader in object-oriented technology, has adapted its environment for the Web. Likewise, Next Software Inc. is leveraging its Objective-C heritage with its WebObjects framework. These products basically turn a Web server into a method dispatcher, automating the connection between what's on the user's screen and the code that makes it happen. For extensive applications, that can be very useful.

For the first two years of Web development, one choice people didn't have to make was where their applications would run. But with the advent of Java and Microsoft's ActiveX, the server side is no longer the only answer. Frequently, the client machine is superior to the server in terms of cycles, responsiveness and access to local data. Unfortunately, client-side applications also require more rigorous thinking from the developer, who can make fewer assumptions about the execution environment.

Up until a few months ago, emacs (the famous Unix editor) was the best Java development environment around. Now the major interactive development environment vendors have adapted their PC C++ environments for Java, notably Symantec Corp.'s Café, Metrowerks Inc.'s CodeWarrior, Sun Microsystems Inc.'s Java WorkShop and Microsoft's J++. Sun continues to hold the lead in Java's specification and marketing (as well as in its hype).

The alternative to Java is ActiveX, which is essentially Microsoft's OLE beefed up with such features as security, encryption and the on-the-fly loading of dynamic link libraries. Despite Microsoft's stance that ActiveX is a completely different technology from Java, the software behemoth's deep pockets, marketing heft and strong developer-relations programs make ActiveX a formidable contender for the client-side crown.

In short, the Web offers an option for every pocketbook. An inspired Unix programmer hacking in emacs with Perl can create customized applications or lash together legacy systems. As more and more vendors get religion, several categories of application—particularly database access and transactions—are being automated. Finally, integrated programming environments have found the Web as well. As those tools mature over the next year, the distinction between Web applications and "local" applications will continue to blur. WM

Mike Carifio is a technical lead and engineering manager at the Commerce Products division of Open Market Inc., which specializes in Internet commerce. He can be reached at carifio@OpenMarket.com.

the group started auditioning commercial solutions instead and settled on Bluestone Inc.'s Sapphire/Web, which at runtime populates with data the HTML templates created by the developer and then automatically generates the C code linking them with the database. "You can generate templates, show them to end users and get agreement on them independent of having to write a whole bunch of annoying little library invocations," says Walker.

Sapphire/Web also let the company add custom code at any point in the page development process. The team built templates in which not only text fields but also text field labels act as data drop sites. That helped solve the language problem by allowing a plant in Tokyo, for instance, to create such descriptions as "part number" in kanji, the part of Japanese script based on Chinese ideographs. But while plants' individual fields will appear different, "they are all mapped into one common database schema so that the analysis tool sees data that looks consistent for the entire globe," says Walker.

A big plus for GE Medical's IS organization is that once it has produced the basic screens, plants can customize their own systems. "We're talking about the manufacturing manager who says, 'OK, I want my plant to be in this system,'" says Walker. "We can give him a URL, and he can sit down at a screen and decide field by field what is relevant to his plant and how the information should appear. You can use the tool to build the tool that customizes the tool."

The project, which launched as a pilot in September and was scheduled for rollout at the end of last year, took two freshly hired programmers seven months to complete. "I'd be delighted if I could claim that it took almost no work to do it, but it took two or three times more person-hours to write the customizable screens than to use the tool the way it was originally intended," says Walker. "But the other side is that we never had a satisfactory way to build multilanguage applications before. Yes, it's more work. But it's the only way we know how to do it."

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Cisco Systems
Managing Diversity

When you consider that about 80 percent of the Internet is built on products from Cisco Systems Inc., it's not surprising that the internetworking company is aggressively pursuing Web application development. Customer service applications, online ordering, technical support—you name it; Cisco has built it. Internally, well over half the company's new development is Web-focused, including flexible benefits registration, expense reporting and organizational charting. "There's so much going on in every area that it's impossible to focus on just one or two," says Peter Solvik, CIO and vice president of information systems.

With so much development taking place simultaneously, Cisco's biggest challenge has been staffing and coordinating the efforts companywide. IS—which handles about 75 percent of the projects, mostly on behalf of internal client organizations—has bulked up with new hires and retrained employees to the point where 50 to 100 people work on the Web. "We hired about half from outside, straight out of college or with Web experience from other companies, and we're offering training in HTML, CGI, Perl and Java," says Solvik. "But once people know these things, the big challenge is keeping them on board versus having them go off to become independent contractors. You've got to keep the work very current, the projects very exciting and the compensation competitive."

The general strategy has been to deploy multiple development teams, with one to 10 members, that churn out the first phase of each project in a month or two (it's the rare project whose initial release takes more than six months to complete, Solvik says). Cisco has found it difficult to manage not only the large number of people but also the many components involved in each application: HTML scripts, GIF images, Java scripts, Perl scripts and the like. Such complexity results in people overwriting one another's work and the creation of large amounts of redundant code. "You have all these people working collaboratively with all these pieces, and it becomes tough to manage source control and version control," says Solvik. "We've been looking for a better way to do that than just saving in directories and sending e-mails back and forth."

Currently, the company is beta testing Build-IT, a tool from Wallop Software Inc. that supports team development. Wallop provides a repository that can be shared among several teams, so if one group has already accomplished wheel invention, another won't replicate its efforts. The tool also has a check-in/check-out feature that prevents developers from overwriting one another's work.

The Wallop beta test exemplifies Cisco's dedication to scoping out new tools. The technology is advancing so fast that Solvik has given one of his direct reports the full-time job of investigating recent entries in a variety of categories. Still, most of what the company uses for both internal and external applications—including a library of programs for connecting Netscape servers with Oracle databases—is internally developed. "We're out searching for commercially available tools, but we haven't found anything compelling just yet," says Solvik.

Meanwhile, the development teams are using Java and JavaScript in order-entry, executive information, and travel-reservation and expense-reporting systems. Still, "as much as possible we try to use HTML and forms and scripts because that's a pretty high-productivity environment," says Solvik. "Java is a very low-level language, so we have to make sure there's a high degree of reusability so we can get the most bang for the buck." WM

Executive Editor Leigh Buchanan can be reached at buchanan@cio.com.

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Bluestone Inc.
www.bluestone.com

The cgi-lib.pl Home Page
www.bio.cam.ac.uk/cgi-lib

Cisco Systems Inc.
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Most Web awards honor Web sites for funky design *OR* whiz-bang technology *OR* reams of content *OR* having a bazillion links.

We don't. We take the Web seriously. Unless your Web initiative is tied to a business objective and delivers real business value through innovative design, technology, content and functionality, it's not worthy of a WebMaster 50/50 Award.

Will You Win This Honor?

The WebMaster 50/50 Award recognizes 50 outstanding Internet and 50 outstanding intranet sites in the business, government and non profit arenas. The 100 winning Web sites will be featured in the August 1997 issue of *WebMaster* and at *www.web-master.com*.

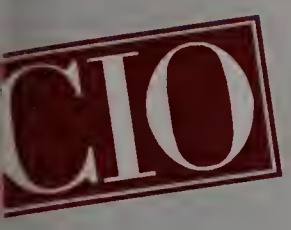
Entering Your Web Site is Easy

You can nominate an entire Web environment, a single site or a single application. A WebMaster 50/50 Call For Entries will be available at *www.web-master.com/50/50* on January 13. For more information, contact Lisa Kerber at 508 935-4449 or *kerber@cio.com*.

Show us what your Web site is really made of.

WEBMASTER

www.web-master.com/50/50



CIO MAGAZINE

WEBMASTER MAGAZINE

EXECUTIVE PROGRAMS

PARTNERSHIP PROGRAMS

CIO COMMUNICATIONS, INC.

Where Technology Gets Down to Business

Dear WebMaster Reader:

Some observers have likened the state of advancement of the World Wide Web to that of television in the early to mid-1950s. It's a comparison that leaves the inescapable impression that we are now at some primitive moment in history. But anyone old enough to really remember '50s television will recall that amid the rudimentary and unsophisticated offerings were also quite a few diamonds in the rough—pioneering shows of true distinction that pointed the way to (and in some cases even surpassed) the best of what that medium offers now.

In the spirit of recognizing comparably groundbreaking Internet and intranet development efforts, we at **WebMaster** Magazine have established the **WebMaster 50/50 Award**. We believe there's a surprising amount of distinguished pioneering work represented among the business sites that now dot the early Web. And we want to unearth it, honor it, write about it, inspire others to imitate it.

So don't hide your light under a mouse pad. We need your help and guidance. In short, we'd like you to tell us a story.

If you are the visionary who presides over an intranet that is transforming the way your organization does business, we want to hear from you. If you are exploiting the Web as the pathway to better workgroup collaboration or enterprise knowledge management, we want to hear from you. If your Web site ROI is off the charts, we want to hear from you. If your external Web is opening up new markets or expanding existing ones, we want to hear from you. If your Web-based electronic commerce initiatives are squeezing cost out of overhead-intensive customer and supplier interactions, we want to hear from you now.

Even if you're none of the above and are actually doing something so novel that no one ever imagined it before, we absolutely must hear from you immediately.

Please go right now to the **WebMaster 50/50** Web site (*www.web-master.com/50/50*) and fill out the nomination form by describing for us the hallmark distinctions of your Web site—whether it's an intranet or an Internet—and the role it plays in helping your enterprise meet its overall business objectives.

In August, we will devote our entire issue to celebrating the 100 initiatives—50 intranets and 50 Internets—that most clearly represent the benchmarks, circa 1997, of business excellence on the Web. We know you're out there. We just need you to tell us what you're doing.

And maybe eventually, decades from now, people will look back on the mid- to late 1990s as the Golden Age of the business Web.

Regards,

Lew McCreary
Editor-in-Chief & Publisher
WebMaster

WEBMASTERS DON'T HAVE TO BE EXPERTS IN EVERYTHING. THEY JUST HAVE TO KNOW WHERE TO FIND THEM. **BY MATTHEW CUTLER**

Masters of Their Domains

he art of Web site creation is so new that many organizations believe they lack the expertise to develop a successful site. That's where they're wrong.

Web sites, after all, are much more than mere compilations of HTML code and GIF files. Most express the purpose and flavor of the sponsoring organization, thanks to the efforts of corporate marketing. If goods and services are offered for sale—either online or through more traditional mechanisms—then the sales organization doubtless had a hand in it. Does the site offer a help desk, technical support or other online assistance? Customer service must be involved. And if a site connects to a database—as is increasingly the case these days—chances are it required the blood, sweat and Perl experience of the systems group.

Most companies already employ marketers, salespeople, customer service representatives, programmers and database experts, not to mention public relations professionals, graphic designers, engineers and human resources staff. Those people probably do not have the word "Web" appearing anywhere on their resumes, yet as masters of their individual domains they are indispensable to any Internet initiative that strives to be something more than a place marker in cyberspace. We at The Webmasters' Guild describe what they offer as "domain expertise": the deep, function-specific knowledge that allows organizations to translate their real-world activities to the Web.

Building a Web site, like constructing a building, is a job for many kinds of experts. A general contractor must sign up masons, carpenters, electricians, plumbers, glaziers and so on. But general contractors know where to find those tradespeople, and they probably know who's good and who's not so good. Webmasters trying to assemble their own teams of experts are rarely so fortunate. That is particularly true in large organizations where the webmaster function operates in less-than-splendid isolation. Without ongoing representation from the disparate functions, the webmaster group will find it tough to identify, let alone enlist the help of, the sales rep directing the launch of the company's new poultry purifier or the SQL whiz who can make customer self-service a reality. It is imperative that the group broadcast its needs and that senior management visibly endorse the participation of all.

Some forward-thinking companies already include Web work in job descriptions for a variety of functions. Chances are, you already have employees who perform brilliantly within their domains. Don't forget to use them, and use them well. WM

Part 3

DOMAIN EXPERTISE

This is the third in a seven-part series of articles in which Webmasters' Guild President Matthew Cutler discusses the tasks and responsibilities of the webmaster function.

WEBMASTERS' GUILD

*Matthew Cutler is president of The Webmasters' Guild Inc. (*www.webmaster.org*), a nonprofit organization dedicated to educating, promoting and unifying the webmaster community. Cutler is also a founder and director of business development at Net.Genesis Corp. (*www.netgen.com*). He can be reached at* mcutler@webmaster.org *or* mcutler@netgen.com.

ILLUSTRATION BY SCOTT MENCHIN

WEBMASTER

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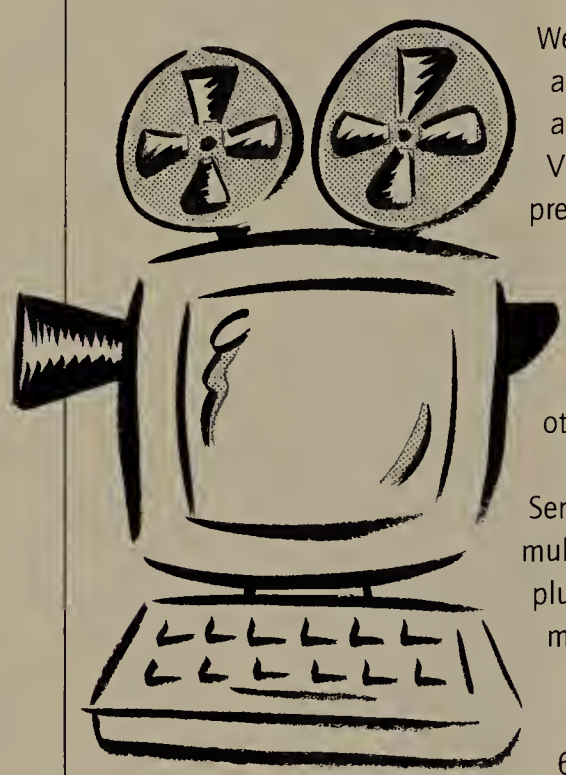
A LIVING TESTAMENT

There are reasons for using Web-based video other than that it moves. VXtreme Inc., for example, argues that it is the best way to deliver the human component of information. But while it would be cool to tape your company's biggest brains expounding on their areas of expertise and stick it on the intranet, such efforts have been impeded by the poor quality of much Web-based video.



VXtreme hopes to amend that situation with its Web Theater Producer, which lets anyone capture and compress video files from VCRs and cameras as well as files formatted with Microsoft Corp.'s Video for Windows. The product's 500-to-1 compression ratio ensures high quality for users connected via 28.8Kbps modems as well as those on corporate LANs. The product also includes a timeline-based authoring tool that lets developers integrate video with text, graphics and other applications.

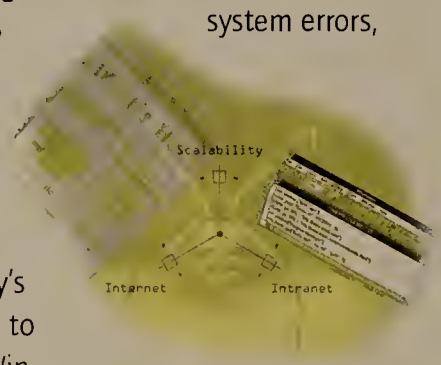
Other family members include the Web Theater Server, a streaming server for video, audio and other multimedia content; and Web Theater Client, a plug-in with VCR-like controls for Netscape Communications Corp.'s Navigator or Microsoft's Internet Explorer. For more information, point your browser toward *www.vxtreme.com* or call 415 614-0700.

THE MORE THE SCARIER

In the new Web mathematics, more content plus more functionality equals more visits to your site. Unfortunately, they can also add up to more things that can go wrong.

Testing, of course, is the best way to spot screw-ups before your customers do, and that's where Mercury Interactive Corp. comes in. The company's WebTest—an extension to its GUI testing tools, WinRunner and XRunner—works with Web pages, browsers, HTML links and images. Users can point and click to create the initial test scripts; tests are then replayed automatically each time the site is recompiled.

WebTest will produce quick visual or high-level, detailed reports on system errors, missing contents and the like. For the truly protean business site, it can help decrease the functionality and security risks associated with new mapping sequences, frequent modifications and overall architectural changes.



Mercury also offers LoadRunner, an integrated client, server and load testing tool that links with WebTest to automate performance and capacity testing. Together the two products will stress-test a server's capacity by emulating activity from thousands of users on a single Microsoft Corp. Windows NT or Unix machine.

For more information, check out *www.merc-int.com* or call 408 523-9900.

EASY REACH

Yes, the Web is cheaper and easier to deploy than lots of other technologies, but that doesn't mean it's cheap and easy. When, for example, the order comes from on high to make legacy databases accessible to users throughout the company, CIOs often find themselves strapped for programming resources.

NetScheme Solutions Inc. is addressing that problem with a plug-and-play intranet-to-database solution that eliminates the need for C, C++, Java, SQL or common gateway interface scripts. The tool, called DataSite, constructs a server-based navigation model and a complete set of hyperlinked page templates from corporate databases. When users click on a navigation link, DataSite automatically translates the URL into SQL queries, then uses the query output to create HTML, which is displayed in a Web page. Users need no additional training, as the overall Web browser experience encompasses database access.

For more information, visit *www.netscheme.com* or call 508 480-0877.

ILLUSTRATIONS BY JOHN CLARKE

www.web-master.com/

SO FAR, THE INTERNET HAS BEEN A PLACE FOR DREAMERS TO FULFILL THEIR UTOPIAN FANTASIES.

NOW, IT'S A PLACE FOR CEO'S TO FULFILL THEIR FINANCIAL ONES.

Introducing WebSpeed. The first comprehensive environment for developing and deploying Internet Transaction Processing applications.

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The Internet is ready to bear corporate fruit? Absolutely, with WebSpeed from Progress Software. The first development environment that enables you to create "self-service" applications. Putting powerful capabilities like order-entry and claims processing into the hands of the most important decision-maker: your customer. Call 1 888 274-7222 or visit our website for a free evaluation guide. Apparently, some dreams do come true.

WebSpeed
Now That's Progress!

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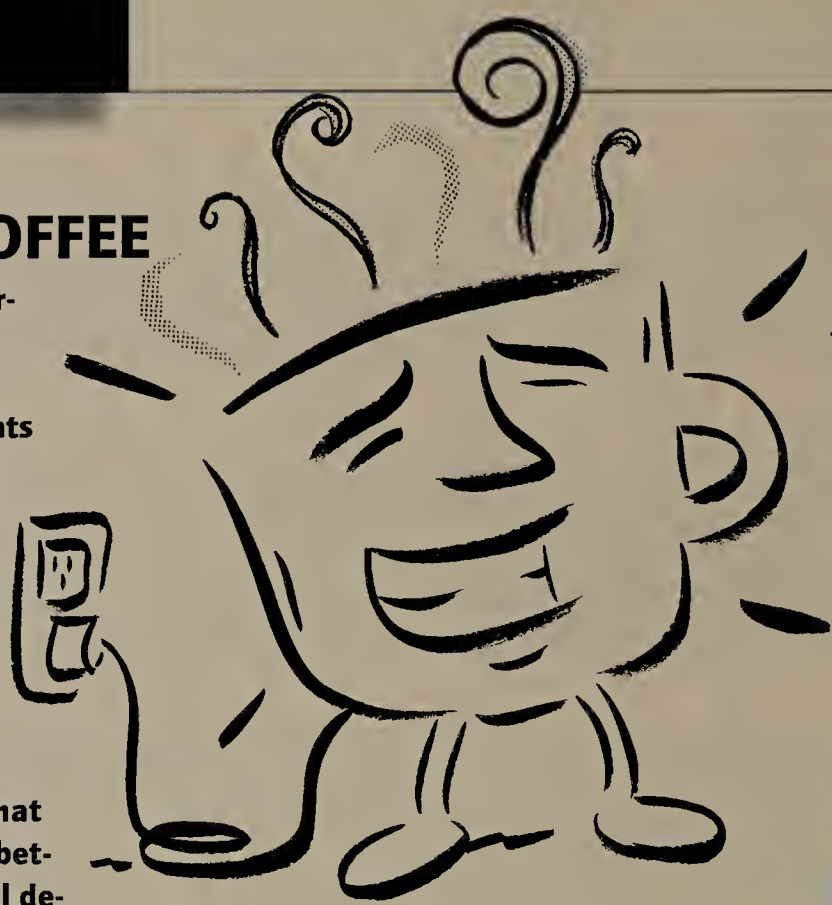
INSTANT COFFEE



Forget about the information haves and have-nots: Sanga International Inc. wants you to start thinking about the Java haves and have-nots.

And what exactly do the Java haves have? Development costs and time to market that are four to six times better than in traditional development environments, according to Sanga. Of course, they also have all the headaches associated with creating high-powered applications in a language that most programmers are just starting to master.

The company's aspirin substitute is Sanga Pages, a suite of tools that lets organizations create Java apps without actually having to develop in Java. The product essentially turns any Java-enabled Web browser into a desktop environment from which it is possible to execute a large collection of applications. Sanga Pages is also the first commercial software product to leverage JavaSoft's Java Database Connectivity standard, thereby letting users view and modify live corporate data from any Web browser.

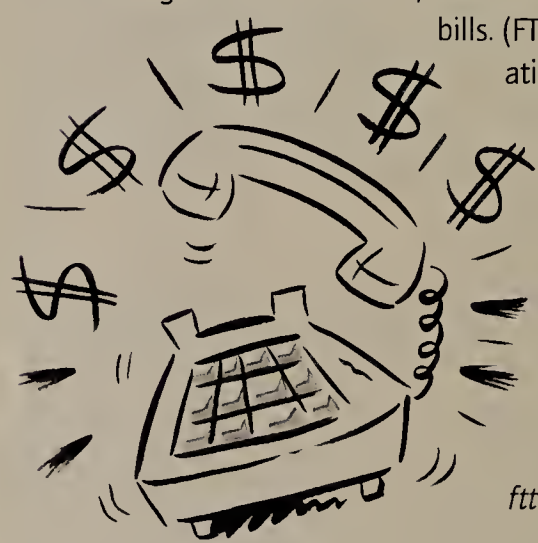
There's a joke going around about the webmaster candidate whose resume boasts "10 years of Java experience." As such tools roll out, he's going to find getting a job even harder.

For more information, surf on over to *www.sangacorp.com* or call 617 272-8500.

ONE BILL FITS ALL

Despite the recent de-escalation in hacker hype, many Web surfers still get spooked when asked to pay for services over the Net. But no one bats an eye about mailing in a payment for a local phone bill. That gave telecom company Federal TransTel (FTT) Inc. a bright idea: Why not let people pay the first bill the same way they do the second?

So the company introduced NetGains, which lets commercial online services, content providers and Web hosts charge end users via their local telephone bills. Sellers simply add NetGains to their menu of customer billing options. Users who select it have their billing data routed to FTT, which adds the itemized charges to their local telephone bills. (FTT connects electronically with all regional Bell operating companies.) FTT then collects the charges from the phone companies and reimburses the sellers.



The system tracks and charges for Internet services as a daily, weekly, monthly or yearly subscription or on a per-transaction basis. So, for example, content providers can add phone bill charges for stock quotes or games, and electronic publishers can bill for software or magazine subscriptions.

For more information, see FTT's site at *www.fttnet.com* or call 800 933-6600.

Continued on Page 62

ENGLISH NOT SPOKEN HERE

When gripers gripe about people who treat the Web as a broadcast medium, they're usually focusing on content issues. But when you consider that the Net is accessible from Indonesia as well as Indianapolis, there's reason to complain about linguistic and cultural generalizations as well.

Localization service provider International Communications Inc. helps companies make their Web sites global in more than just reach. With an international staff and a global network of native translators, the company will translate sites into more than 20 languages. And since the Web isn't just about words, the company also helps clients deal with cultural and technical issues, like double-byte character input methods, multibyte encoding and testing in foreign-language operating systems.

Por mas informacion, buscales en la Web a *www.intl.com* o llámales por teléfono a 508 620-3900.

ILLUSTRATIONS BY JOHN CLARKE

www.web-master.com/

A worldwide Intranet data warehouse? Eli Lilly won't wait.

"Sapphire/Web is exceptionally robust and easy to use. Its ability to generate C code makes our job easy and doesn't require us to conform to a proprietary tool."

Dave Baker
Project Leader,
HR Systems
Eli Lilly Corporation

To develop Web applications TODAY, they use Bluestone's Sapphire/Web.

How do you provide access to thousands of pages of information? Vital information that people around the world need to do their jobs?

Eli Lilly, one of the world's largest pharmaceutical companies, needed to give its top HR management access to a huge data warehouse of personnel information. They wanted a simple, point and click system to track key employees from 65 global affiliates—putting resumes, photos, bios, compensation data and other critical information online.

What tool did they use ?

Sapphire/Web®, from Bluestone®.

Only Sapphire/Web lets you build Web-based client/server applications in UNIX or Windows (NT or '95) using a comprehensive set of visual tools. Point and click, and Sapphire/Web binds your database—including its native SQL, stored procedures, existing functions, executables, files and even legacy systems—to front-end Web forms. So Internet or Intranet applications come to life quickly and easily.

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Sapphire/Web

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- **Open: works with any Web editor, server and browser; integrates with Java, JavaScript, ActiveX and VRML; keeps pace with changing Web technology.**
- **Robust: generates C and C++ for the ultimate in power, performance and portability.**

Start today! Download Sapphire/Web FREE!

Get more information or an evaluation copy at **http://www.bluestone.com.** Or call **(609) 727-4600.** We'll also send "The Web Won't Wait"—which profiles other Sapphire/Web fans like META Group, KPMG and Open Market.

Sapphire/Web
The Web won't wait.

Bluestone

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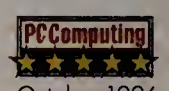

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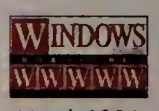

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